Proponent's Environmental Assessment

Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

Prepared for

Pacific Gas and Electric Company

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Prepared by

TRC
Results you can rely on

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Acronyms

Acronym/Abbreviation	Definition
AB	Assembly Bill
APM	Applicant-Proposed Measure
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP(s)	best management practice(s)
BRTR	Biological Resources Technical Report
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model Versions 2016.3.2
Caltrans	California Department of Transportation
Cal PRC	California Public Resources Code
CARB	California Air Resources Board
CCA	California Coastal Act
CCC	California Coastal Commission
CCR	California Code of Regulations
CDP	Coastal Development Permit
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGS	California Geological Survey
CH_4	Methane
CHRIS	California Historical Resources Information System
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent

Acronym/Abbreviation	Definition
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission
CRPR	California Rare Plant Rank
CRHR	California Register of Historic Resources
CRS	Cultural Resources Specialist
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationship
dBA	A-weighted sound level
dB	decibel
DOC	Department of Conservation
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control
EPA	Environmental Protection Agency
ESA	Endangered species Act
ESU	Evolutionary Significant Unit
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FICUN	Federal Interagency Committee on Urban Noise
FMMP	Farmland Mapping and Monitoring Program
FOCA	Federal Office of Civil Aviation
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GHG	Greenhouse Gases
HAP	hazardous air pollutants
HBGS	Humboldt Bay Generating Station
HCP	Habitat Conservation Plan
H_2S	hydrogen sulfide
HWMA	Humboldt Waste Management Authority
KOP	Key Observation Point
kV	kilovolt
LCP	Local Coastal Program
LDS	Light-duty steel

Acronym/Abbreviation	Definition
L_{eq}	energy equivalent sound level
L_{dn}	day-night equivalent noise level
LOS	Level of Service
LST	Lattice Steel Tower
MBTA	Migratory Bird Treaty Act
MCE	Maximum Credible Earthquake
MRZ	mineral resource zone
NAAQS	National Ambient Air Quality Standards
NCIC	North Coast Information Center
NCCP	Natural Community Conservation Plan
NCUAQMD	North Coast Unified Air Quality Management District
nDPS	northern distinct population segment
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
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
NSR	New Source Review
NWIC	Northwest Information Center
O_3	ozone
O&M	operation and maintenance
OPR	Governor's Office of Planning and Research
Pb	lead
PBDB	Paleobiology Database
PEA	Proponent's Environmental Assessment
PFYC	Potential Fossil Yield Classification
PGA	Peak Ground Acceleration
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

Acronym/Abbreviation	Definition
PRC	Public Resources Code
PSD	Prevention of Significant Deterioration
PYFC	Potential Fossil Yield Classification System
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
sDPS	southern distinct population segment
S&HC	Streets and Highways Code
SF_6	sulfur hexafluoride gas
SHMA	Seismic Hazards Mapping Act
SLF	Sacred Lands File
SIP	state implementation plan
SMA	Streamside Management Area
SO_x	sulfur dioxides
SSC	Species of Special Concern
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCR	Tribal Cultural Resources
TMDL	Total Maximum Daily Loads
TSP	Tubular Steel Pole
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
VP	viewpoint
VRP	visibility reducing particles
WEAP	Worker Environmental Awareness Training

Index to CPUC PEA Requirements

CPUC Requirement	Section Number
Cover Sheet	
Chapter 1: PEA Summary	
1. The major conclusions of the PEA	1.1
2. Any areas of controversy	None
3. Any major issues that must be resolved including the choice among reasonably feasible alternatives and mitigation measures, if any	None
4. Description of inter-agency coordination	1.2.1
5. Description of public outreach efforts, if any	1.2.1
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.	2.1, 2.2; PTC Application
2.2 Project Objectives Analysis of the reason why attainment of these objectives is necessary or desirable. Such analysis must be sufficiently detailed to inform the Commission in its independent formulation of project objectives, which will aid any appropriate CEQA alternatives screening process.	2.1; 2.2; PTC Application
Chapter 3: Project Description	
3.1 Project Location	
1. Geographical Location: County, City (provide project location map(s)).	2.3; Figure 2.1-1; Figure 2.3-1
2. General Description of Land Uses within the project site (e.g., residential, commercial, agricultural, recreation, traverses vineyards, farms, open space, number of stream crossings, etc.).	2.3; 3.10.3.2
3. Describe if the Proposed Project is located within an existing property owned by the Applicant, traverses existing rights of way (ROW) or requires new ROW. Give the approximate area of the property or the length of the project that is in an existing ROW or which requires new ROWs.	2.7
3.2 Existing System	
1. Describe the local system to which the Proposed Project relates; include all relevant information about substations, transmission lines and distribution circuits.	2.4; Figure 2.2-1
2. Provide a schematic diagram and map of the existing system.	Figure 2.2-1
3. Provide a schematic diagram that illustrates the system as it would be configured with implementation of the Proposed Project.	2.4; Figure 2.2-1 (No change)
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, switching station etc.?	2.5
2. Describe how the Proposed Project fits into the Regional system. Does it create a loop for reliability, etc.?	2.4

CPUC Requirement	Section Number
3. Describe all reasonably foreseeable future phases, or other reasonably foreseeable consequences of the Proposed Project.	Not Applicable (N/A)
4. Provide capacity increase in MW. If the project does not increase capacity, state it.	2.2, 2.6.1
5. Provide GIS (or equivalent) data layers for the Proposed Project preliminary engineering including estimated locations of all physical components of the Proposed Project as well as those related to construction. For physical components, this could include but is not limited to the existing components (e.g., ROW, substation locations, poles, etc.) as well as the proposed pole locations, transmission lines, substations, switching station etc. For elements related to construction include: proposed or likely lay-down areas, work areas at the pole sites, pull and tension sites, access roads (e.g., temporary, permanent, existing, etc.), areas where special construction methods may need to be employed, areas where vegetation removal may occur, areas to be heavily graded, etc. More details about this type of information are provided below.	For security reasons, GIS data layers with preliminary locations of project components will be submitted confidentially, but can be used to make maps as needed.
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).	1.1, 2.2, 2.5; 2.6.1
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
4. Describe what would occur to other lines and utilities that may be collocated on the poles to be replaced (e.g., distribution, communication, etc.).	2.5.1; 2.5.2; 2.5.3; 2.6.2.6
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.). Available GIS data layers with structure numbers will be submitted confidentially.
2. Structure diagram and, if available, photos of existing structure. Preliminary diagram or “typical” drawings and, if possible, photos of proposed structure. Also provide a written description of the most common types of structures and their use (e.g., Tangent poles would be used when the run of poles continues in a straight line, etc.). Describe if the pole/tower design meets raptor safety requirements.	Figures 2.6-1, 2.6-2, 2.6-3 and 2.6-4. Figures 3.1-3b, 3.1-4b, 3.1-5b, 3.1-6b, 4.1-7b, 3.1-8b. Section 2.6.2
3. Type of pole (e.g., wood, steel, etc.) or tower (e.g., self-supporting lattice).	2.6.2
4. For poles, provide “typical” drawings with approximate diameter at the base and the tip; for towers, estimate the width at base and top.	Figures 2.6-1, 2.6-2, 2.6-3 and 2.6-4; Table 2.8-2
5. Identify typical total pole lengths, the approximate length to be embedded, and the approximate length that would be above ground surface; for towers, identify the approximate height above ground surface and approximate base footprint area.	2.6.2, Table 2.8-2, 2.6.1-2.6.4

CPUC Requirement	Section Number
6. Describe any specialty poles or towers; note where they would be used (e.g., angle structures, heavy angle lattice towers, stub guys); make sure to note if any guying would likely be required across a road.	2.6.2
7. If the project includes pole-for-pole replacement, describe the approximate location of where the new poles would be installed relative to the existing alignment.	2.6.2, 2.8.5.3
8. Describe any special pole types (e.g., poles that require foundations, transition towers, switch towers, microwave towers, etc.) and any special features.	2.6.2
3.5.3 Conductor Cable	
3.5.3.1 Above-Ground Installation	
1. Describe the type of line to be installed on the poles/tower (e.g., single circuit with distribution, double circuit, etc.).	2.5; 2.6.1
2. Describe the number of conductors required to be installed on the poles or tower and how many on each side including applicable engineering design standards.	2.6.1; 2.6.2
3. Provide the size and type of conductor (e.g., ACSR, non-specular, etc.) and insulator configuration.	2.5.1; 2.6.1
4. Provide the approximate distance from the ground to the lowest conductor and the approximate distance between the conductors (i.e., both horizontally and vertically) Provide specific information at highways, rivers, or special crossings.	2.8.6.1
5. Provide the approximate span lengths between poles or towers, note where different if distribution is present or not if relevant.	2.6.2
6. Describe if other infrastructure would likely be collocated with the conductor (e.g., fiber optics, etc.); if so, provide conduit diameter of other infrastructure.	2.6.2.6
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).	Not Applicable (“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 and Switching Stations	
1. Provide “typical” Plan and Profile views of the proposed substation or switching station and the existing substation or switching station if applicable.	N/A
2. Describe the basic bus pattern or provide a basic one-line diagram and explain the types of equipment that would be temporarily or permanently installed and provide details as to what the function/use of said equipment would be. Include information such as, but not limited to: mobile substations or switching stations, switchgear, circuit breakers, transformers, capacitors, and new lighting.	N/A
3. Provide the approximate or “typical” dimensions (width and height) of new structures including engineering and design standards that apply.	N/A
4. Describe the extent of the Proposed Project. Would it occur within the existing fence line, existing property line or would either need to be expanded?	N/A
5. Describe the electrical need area served by the distribution substation or switching station.	N/A

CPUC Requirement	Section Number
3.6 Right-of-Way Requirements	
1. Describe the ROW location, ownership, and width. Would existing ROW be used or would new ROW be required?	2.7
2. If new ROW is required, describe how it would be acquired and approximately how much would be required (length and width).	2.7
3. List properties likely to require acquisition.	2.7
3.7 Construction	
3.7.1 For All Projects	
3.7.1.1 Staging Areas	
1. Where would the main staging area(s) likely be located?	2.8.1.1 Figure 2.8-1
2. Approximately how large would the main staging area(s) be?	2.8.1.1; Figure 2.8-1
3. Describe any site preparation required, if known, or generally describe what might be required (i.e., vegetation removal, new access road, installation of rock base, etc.).	2.8.1; 2.8.2
4. Describe what the staging area would be used for (i.e., material and equipment storage, field office, reporting location for workers, parking area for vehicles and equipment, etc.).	2.8.1
5. Describe how the staging area would be secured, would a fence be installed? If so, describe the type and extent of the fencing.	2.8.1.1
6. Describe how power to the site would be provided if required (i.e., tap into existing distribution, use of diesel generators, etc.).	2.8.1.1
7. Describe any grading activities and/or slope stabilization issues.	2.8.1
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.).	2.8.1
2. For each known work area, provide the area required (include length and width) and describe the types of activities that would be performed.	2.8.1
3. Identify the approximate location of known work areas in the GIS database.	Figure 2.8-1; Available GIS data layers showing preliminary locations will be submitted separately to the CPUC.
4. How would the work areas likely be accessed (e.g., construction vehicles, walk in, helicopter, etc.)?	2.8.1 – 2.8.3; 2.8.5.3
5. If any site preparation is likely required, generally describe what and how it would be accomplished.	2.8.1, 2.8.3
6. Describe any grading activities and/or slope stabilization issues.	2.8.1
7. Based on the information provided, describe how the site would be restored.	2.8.1

CPUC Requirement	Section Number
3.7.1.3 Access Roads and/or Spur Roads	
1. Describe the types of roads that would be used and or would need to be created to implement the Proposed Project. See table below as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and overland access.	2.8.2
2. For road types that require preparation, describe the methods and equipment that would be used.	2.8.2; Table 2.8-1
3. Identify approximate location of all access roads (by type) in the GIS database.	Figure 2.8-1; Available GIS data layers with preliminary access route locations will be submitted separately to the CPUC.
4. Describe any grading activities and/or slope stabilization issues. See table in PEA Checklist as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and overland access	2.8.2; Table 2.8-1
3.7.1.4 Helicopter Access	
1. Identify which proposed poles/towers would be removed and/or installed using a helicopter.	2.8.1.2, GIS data layers with preliminary structures to be removed/installed using helicopter will be submitted separately to the CPUC.
2. If different types of helicopters are to be used, describe each type (e.g., light, heavy or sky crane) and what activities they will be used for.	2.8.1.4; Table 2.8-3
3. Provide information as to where the helicopters would be staged, where they would refuel, where they would land within the Project site.	2.8.1.4
4. Describe any Best Management Practices (BMPs) that would be employed to avoid impacts caused by use of helicopters, for example: air quality and noise considerations.	2.8.1.4; 3.3.4.2; 3.12.4.2; 3.16.4.2
5. Describe flight paths, payloads, hours of operations for known locations and work types.	2.8.1.4
3.7.1.5 Vegetation Clearance	
1. Describe what types of vegetation clearing may be required (e.g., tree removal, brush removal, flammable fuels removal) and why (e.g., to provide access, etc.).	2.8.3
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 with preliminary locations will be submitted separately to the CPUC.

CPUC Requirement	Section Number
3. Describe how each type of vegetation removal would be accomplished.	2.8.3
4. For removal of trees, distinguish between tree trimming as required under GO-95D and tree removal.	2.8.3
5. Describe the types and approximate number and size of trees that may need to be removed.	2.8.3
6. Describe the type of equipment typically used.	2.8.3, 2.8.4, Table 2.8-3
3.7.1.6 Erosion and Sediment Control and Pollution Prevention during Construction	
1. Describe the areas of soil disturbance including estimated total areas, and associated terrain type and slope. List all known permits required. For project sites of less than one acre, outline the BMPs that would be implemented to manage surface runoff. Things to consider include, but are not limited to, the following: • Erosion and Sedimentation BMPs; • Vegetation Removal and Restoration; and/or • Hazardous Waste and Spill Prevention Plans.	2.8.4; Table 2.10-1; Table 2.11-1; 3.9.4.2
2. Describe any grading activities and/or slope stabilization issues.	2.8.1
3. Describe how construction waste (i.e., refuse, spoils, trash, oil, fuels, poles, pole structures, etc.) would be disposed.	2.6.2, 2.8.4, 2.8.5.3, 2.8.7
3.7.1.7 Cleanup and Post-Construction Restoration	
1. Describe how cleanup and post-construction restoration would be performed (i.e., personnel, equipment, and methods). Things to consider include, but are not limited to, restoration of the following: Natural drainage patterns; wetlands; vegetation, and other disturbed areas (i.e. staging areas, access roads, etc.).	2.8.7; Table 2.11-1
3.7.2 Transmission Line Construction (Above Ground)	
3.7.2.1 Pull and Tension Sites	
1. Provide the general or average distance between pull and tension sites.	2.8.1.3
2. Provide the area of pull and tension sites, include the estimated length and width.	2.8.1.3
3. According to the preliminary plan, how may pull and tension sites would be required, and where would they be located? Please provide the location information in GIS.	2.8.1.3; Figure 2.8-1; Available GIS data layers showing preliminary locations will be submitted separately to the CPUC.
4. What type of equipment would be required at these sites?	2.8.1.3
5. If conductor is being replaced, how would it be removed from the site?	2.8.1.3
3.7.2.2 Pole Installation Removal	
1. Describe how the construction crews and their equipment would be transported to and from the pole site location. Provide vehicle type, number of vehicles, and estimated number of trips and hours of operation.	2.8.5.3, Table 2.8-3
Pole and Foundation Removal	
1. Describe the process of how the poles and foundations would be removed.	2.8.5.3

CPUC Requirement	Section Number
2. Describe what happens to the hole that the pole was in (i.e., reused or backfilled)?	2.8.5.3
3. If the hole is to be filled, what type of fill would be used, where would it come from?	2.8.5.3
4. Describe any surface restoration that would occur at the pole site?	2.8.7
5. Describe how the poles would be removed from the site?	2.8.5.3
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	2.8.5.5
2. Describe any special methods that would be required to top poles that may be difficult to access, etc.	2.8.5.5
Pole Tower Installation	
1. Describe the process of how the new poles/towers would be installed; specifically call out any special construction methods (e.g., helicopter installation) for specific locations or for different types of poles/towers.	2.8.5.1 – 2.8.5.4
2. Describe the types of equipment and their use as related to pole/tower installation.	2.8.5.1 – 2.8.5.4; Table 2.8-4
3. Describe actions taken to maintain a safe work environment during construction (e.g., covering of holes/excavation pits, etc.).	2.8.5.1 – 2.8.5.4
4. Describe what would be done with soil removed from a hole/foundation site.	2.8.5.1 – 2.8.5.4
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.	2.6.2; 2.6.2.1, 2.6.2.2, 2.8.4, 2.8.5.1, 2.8.5.2, Table 2.8-2
6. Describe briefly how poles/towers and associated hardware are assembled.	2.8.5.1 – 2.8.5.4
7. Describe how the poles/towers and associated hardware would be delivered to the site; would they be assembled off-site and brought in or assembled on site?	2.8.5.1 – 2.8.5.4
8. Provide a table of pole/tower installation metrics and associated disturbance area estimates as in PEA Checklist 3.7.2.2	Table 2.8-2
3.7.2.3 Conductor/Cable Installation	
1. Provide a process-based description of how new conductor/cable would be installed and how old conductor/cable would be removed, if applicable. *[**Note**, graphical representation of the general sequencing is helpful for the reader here.]*	2.8.6, 2.8.6.1, 2.8.6.2
2. Generally describe the conductor/cable splicing process.	2.8.6.1
3. If vaults are required, provide their dimensions and approximate location/spacing along the alignment.	N/A
4. Describe in what areas conductor/cable stringing/installation activities would occur.	2.8.1.3, 2.8.6.1; Figure 2.8-1
5. Describe any safety precautions or areas where special methodology would be required (e.g., crossing roadways, stream crossing).	2.8.6.1, 2.8.6.2

CPUC Requirement	Section Number
3.7.3 Transmission Line Construction (Below Ground)	
3.7.3.1 Trenching	
1. Describe the approximate dimensions of the trench (e.g., depth, width).	N/A
2. Describe the methodology of making the trench (e.g., saw cutter to cut the pavement, back hoe to remove, etc.).	N/A
3. Provide the total approximate cubic yardage of material to be removed from the trench, the amount to be used as backfill and the amount to subsequently be removed/disposed of off-site.	N/A
4. Provide off-site disposal location, if known, or describe possible option(s).	N/A
5. If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).	N/A
6. Describe if dewatering would be anticipated, if so, how the trench would be dewatered, what are the anticipated flows of the water, would there be treatment, and how would the water be disposed.	N/A
7. Describe the process for testing excavated soil or groundwater for the presence of pre-existing environmental contaminants that could be exposed as a result of trenching operations.	N/A
8. If a pre-existing hazardous waste were encountered, describe the process of removal and disposal.	N/A
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	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 and Switching Station Construction	
1. Describe any earth moving activities that would be required; what type of activity and, if applicable, estimate cubic yards of materials to be reused and/or removed from the site for both site grading and foundation excavation.	N/A
2. Provide a conceptual landscape plan in consultation with the municipality in which the substation or switching station is located.	N/A
3. Describe any grading activities and/or slope stabilization issues.	N/A
4. Describe possible relocation of commercial or residential property, if any.	N/A
3.7.5 Construction Workforce and Equipment	
1. Provide the estimated number of construction crew members.	2.8.8
2. Describe the crew deployment, would crews work concurrently (i.e., multiple crews at different sites); would they be phased, etc.	2.8.8
3. Describe the different types of activities to be undertaken during construction; the number of crew members for each activity i.e. trenching, grading, etc.; and number and types of equipment expected to be used for said activity. Include a written description of the activity. See example in PEA Checklist 3.7.5.	Table 2.8-3
4. Provide a list of the types of equipment expected to be used during construction of the Proposed Project as well as a brief description of the use of the equipment. See example in PEA Checklist 3.7.5.	Table 2.8-3, Table 2.8-4
3.7.6 Construction Schedule	
1. Provide a Preliminary Project Construction Schedule; include contingencies for weather, wildlife closure periods, etc. Include Month Year, or Month Year to Month Year for each. See example in PEA Checklist 3.7.6.	2.8.9; PTC Application
3.8 Operation and Maintenance	
1. Describe the general system monitoring and control (i.e., use of standard monitoring and protection equipment, use of circuit breakers and other line relay protection equipment, etc.).	2.9
2. Describe the general maintenance program of the Proposed Project, include items such as: • Timing of the inspections (i.e., monthly, every July, as needed); • Type of inspection (i.e., aerial inspection, ground inspection); and • Description of how the inspection would be implemented. Things to consider, who/how many crew members; how would they access the site (walk to site, vehicle, ATV); would new access be required; would restoration be required, etc.	2.9
3. If additional full-time staff would be required for operation and/or maintenance, provide the number and for what purpose.	N/A
3.9 Applicant Proposed Measures	
1. If there are measures that the Applicant would propose to be part of the Proposed Project, please include those measures and reference plans or implementation descriptions.	2.11

CPUC Requirement	Section Number
Chapter 4: Environmental Setting	
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 (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.2.3.2
• Regional environment	3.2.3.1
2. A description of the regulatory environment/context	
• Federal	3.2.2.1
• State	3.2.2.1
• Local	3.2.2.1
4.3 Air Quality	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.3.3.1
• 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
• Regional environment	3.4.3
2. A description of the regulatory environment/context	
• Federal	3.4.2.1

CPUC Requirement	Section Number
• State	3.4.2.1
• Local	3.4.2.1
4.5 Cultural Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.5.3
• Regional environment	3.5.3
2. A description of the regulatory environment/context	
• Federal	3.5.2.1
• State	3.5.2.1
• Local	3.5.2.1
4.6 Geology and Soils	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.6.3
• Regional environment	3.6.3
2. A description of the regulatory environment/context	
• Federal	3.6.2.1
• State	3.6.2.1
• Local	3.6.2.1
4.7 Greenhouse Gas Emissions	
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)	3.7.3.1
• Regional environment	3.7.3.1
2. A description of the regulatory environment/context	
• Federal	3.7.2.1
• State	3.7.2.1
• Local	3.7.2.1
4.8 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

CPUC Requirement	Section Number
2. A description of the regulatory environment/context	
• Federal	3.8.2.1
• State	3.8.2.1
• Local	3.8.2.1
4.9 Hydrology and Water Quality	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.9.3
• Regional environment	3.9.3
2. A description of the regulatory environment/context	
• Federal	3.9.2.1
• State	3.9.2.1
• Local	3.9.2.1
4.10 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
4.11 Mineral Resources	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.11.3
• Regional environment	3.11.3
2. A description of the regulatory environment/context	
• Federal	3.11.2.1
• State	3.11.2.1
• Local	3.11.2.1
4.12 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

CPUC Requirement	Section Number
• 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
4.13 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
4.14 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
4.15 Recreation	
1. A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)	
• Local environment (site-specific)	3.15.3.2
• Regional environment	3.15.3.1
2. A description of the regulatory environment/context	
• Federal	3.15.2.1
• State	3.15.2.1
• Local	3.15.2.1
4.16 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.)	

CPUC Requirement	Section Number
• Local environment (site-specific)	3.16.3
• Regional environment	3.16.3
2. A description of the regulatory environment/context	
• Federal	3.16.2.1
• State	3.16.2.1
• Local	3.16.2.1
4.17 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 3.1-3 through 3.1-8
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.	Provided 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 dependent on type of construction activity.	3.3.4.3
3. Identify Project greenhouse gas (GHG) emissions as follows:	
• Quantify GHG emissions from a business as usual snapshot. That is, what the GHG emissions will be from the proposed project if no mitigations were used	3.7.4.3
• Quantify GHG emission reductions from every Applicant Proposed Measure that is implemented. Itemize quantifications and place in a table format	3.7.4.3
• Identify the net emissions of a project after mitigations have been applied.	3.7.4.3
• Calculate and quantify GHG emissions (CO_2 equivalent) for the project including construction & operation.	3.7.4.3; Provided separately to CPUC staff.

CPUC Requirement	Section Number
• Calculate and quantify the GHG reduction based on reduction measures proposed for the project.	3.7.4.3
• Propose Applicant Proposed Measures (APMs) to implement and follow to maximize GHG reductions. If sufficient, CPUC will accept them without adding further mitigation measures.	3.7.4.2
• Discuss programs already in place to reduce GHG emissions on a system wide level. This includes Applicant's voluntary compliance with USEPA SF_6 reduction program, reductions from energy efficiency, demand response, LTPP, et al.	3.7.4.2
5.4 Biological Resources - In addition to an impacts analysis:	
1. Provide a copy of the Wetland Delineation and supporting documentation (i.e., data sheets). If verified, provide supporting documentation. Additionally, GIS data of the wetland features should be provided as well.	Delineation provided separately to CPUC staff. Available GIS data layers will be submitted separately.
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.	Biological Tech Report provided separately to CPUC staff. Available GIS data layers will be submitted separately.
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.	Report submitted separately to CPUC staff. Consultation letters in Appendix D.
2. Provide a copy of the records found in the literature search.	Report submitted separately to the CPUC.
3. Provide a copy of all letters and documentation of Native American consultation.	Appendix D
5.6 Geology, and Soils - 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.	Provided separately to CPUC staff.
5.7 Hazards and Hazardous Materials [Reference and list the documents that apply.] - In addition to an impacts analysis:	
1. Environmental Data Resources report.	3.8.3.3 Equivalent to be provided separately to the CPUC.
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.

CPUC Requirement	Section Number
4. Worker Environmental Awareness Program (WEAP).	APM HAZ-2: Worker Environmental Awareness Program (WEAP) for Health, Safety, and Environment Training materials to be provided separately to the 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.	3.8.4.3
5.8 Hydrology and Water Quality – In addition to an impacts analysis:	
1. Describe impacts to groundwater quality including increased run-off due to construction of impermeable surfaces, etc.	3.9.4.3
2. Describe impacts to surface water quality including the potential for accelerated soil erosion, downstream sedimentation, and reduced surface water quality.	3.9.4.3
5.9 Land Use and Planning - In addition to an impacts analysis:	
1. Provide GIS data of all parcels within 300' of the Proposed Project with the following data: APN number, mailing address, and parcel's physical address.	Available GIS data layers will be submitted separately to the CPUC.
5.10 Mineral Resources – Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	3.11.4.3
5.11 Noise	
1. Provide long term noise estimates for operational noise (e.g., corona discharge noise, and station sources such as substations, switching stations, etc.).	3.12.4.3
5.12 Population and Housing Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	3.13.4.3
5.13 Public Services Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.	3.14.4.3
5.14 Recreation Data needs already specified under Chapter 3 would generally meet the data needs for this resource area	3.15.4.3
5.15 Transportation and Traffic Describe the likely probable routes that are the subject of the traffic analysis.	3.16.4.3
1. Discuss traffic impacts resulting from construction of the Proposed Project including ongoing maintenance operations.	3.16.4.3
2. Provide a preliminary description of the traffic management plan that would be implemented during construction of the Proposed Project.	3.16.4.2

CPUC Requirement	Section Number
5.16 Utilities and Services Systems	
1. Describe how treated wood poles would be disposed of after removal, if applicable.	3.17.4.3
5.17 Cumulative Analysis	
1. Provide a list of projects (i.e., past, present and reasonably foreseeable future projects) within the Project Area that the applicant is involved in.	Table 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 include but are not limited to: the local planning agency, Caltrans, etc.	Table 3.18-2
5.18 Growth-Inducing Impacts, If Significant	
1. Provide information on the Proposed Project's growth inducing impacts, if any. The information should include, but is not necessarily limited, to the following:	
• Any economic or population growth, in the surrounding environment that will directly or indirectly, result from the Proposed Project	N/A
• Any increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.), that will directly or indirectly result from the Proposed Project	N/A
• 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
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
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
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 nearby mitigation measures. Off-site mitigation measures within California will be considered.	3.7.4.2
Chapter 7: Other Process-Related Data Needs	
1. Excel spreadsheet that includes all parcels within 300 feet of any project component with the following data: APN number, owner mailing address, and parcels physical address.	Appendix A; Excel spreadsheet submitted separately to the CPUC.

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1.0 PEA SUMMARY

1.1 INTRODUCTION

PG&E proposes to maintain electric transmission system reliability in the City of Eureka and surrounding areas by replacing the conductor and poles on approximately 7.8 miles of the existing 8.4-mile Humboldt Bay-Humboldt #1 60 kV Power Line, a single-circuit power line between Humboldt Bay Substation, just south of Eureka, and Humboldt Substation, just east of Eureka. The Humboldt Bay-Humboldt 60 kV Reconductoring Project (project) will replace corroded conductors (reconductor) and supporting poles to reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. Along the beginning approximately 0.6 mile of the project alignment, where the Humboldt Bay-Humboldt #1 60 kV Power Line is in close proximity to the Humboldt Bay-Eureka 60 kV Power Line, PG&E also will also reconductor that line segment and install the new wire onto shared transmission towers to reduce the number of structures in wetland areas while complying with required ground-to-conductor and conductor-to-conductor clearance requirements. No substation work is anticipated as part of this project, with the possible exception of some minor changes to the switches inside Humboldt Bay Substation and Humboldt 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.

1.1 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 2.11-1 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: Properties Within 300 Feet
- Appendix B: EMF Background Information
- Appendix C: Nesting Birds: Species-Specific Buffers for PG&E Activities
- Appendix D: Native American Heritage Commission Correspondence
- Appendix E: List of Preparers

1.2 AGENCY COORDINATION AND PUBLIC OUTREACH EFFORTS

1.2.1 AGENCY COORDINATION

PG&E met with several regulatory and local 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.

Section IV.d of the Permit to Construct (PTC) Application provides a detailed summary of inter-agency coordination regarding this project. Table 1.3-1: Summary of Agency Meetings Conducted to Date, summarizes the agency meetings and correspondence that took place in the development of this PEA and the PTC Application.

Coordination with these agencies will continue through the project’s planning process, and discretionary permits will be applied for and obtained 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. PG&E will obtain all necessary federal and state permits as well as applicable ministerial building and encroachment permits from local jurisdictions.

Table 1.3-1: Summary of Agency Meetings Conducted to Date

Date of Consultations/Outreach	Agency
Beginning February 1, 2018 (multiple dates)	US Fish and Wildlife Service
January 29, 2018	US Army Corps of Engineers
January 25, 2019	National Marine Fisheries Service
April 16, 2018	Federal Aviation Administration
Beginning February 1, 2018 (multiple dates)	California Department of Fish and Wildlife
May 9, 2018	North Coast Regional Water Quality Control Board
Beginning February 6, 2018 (multiple dates)	California Coastal Commission
Beginning April 25, 2012 (multiple dates)	Native American Heritage Commission
Beginning February 13, 2018 (multiple dates)	City of Eureka
Beginning February 13, 2018 (multiple dates)	County of Humboldt

1.2.2 NATIVE AMERICAN HERITAGE COMMISSION AND TRIBAL OUTREACH

A search of the Sacred Lands File (SLF) was requested from the Native American Heritage Commission (NAHC) in April 2012 and again in December 2017. In 2012, the NAHC identified nine Native American individuals or tribal organizations with traditional or historical ties to the region who may have information about Native American cultural resources within the project area. On May 16, 2012, PG&E sent letters to the nine contacts, requesting information on resources in the project area and inviting general comments or questions pertaining to the project. Two responses were received regarding the 2012 coordination letters. Detailed discussions regarding these responses are provided in Section 3.5.3.6 of this PEA, Section IV.d of the PTC Application, and included in Appendix D of this PEA. Follow-up calls and emails were sent to the remaining seven contacts on June 4, 2012 and June 19, 2012.

Additional outreach was conducted in response to a 2017 SLF search with NAHC, which identified 10 contacts of Native American individuals or tribal organizations that might have information regarding cultural resources in the project area. NAHC also provided information regarding one Native American cultural site in the project area, stating that the Wiyot should be contacted for information specific to that site. PG&E completed extended Phase I testing at the identified site with a representative of the Wiyot tribe and confirmed, after further coordination, that the Wiyot Tribe did not have any concerns regarding the project. Additional information regarding 2017 NAHC coordination is provided in Appendix D of this PEA and Section IV.d of the PTC Application.

1.2.3 PUBLIC AND COMMUNITY OUTREACH

Public outreach and communications are critical elements of PG&E's planning process. This project will be located in an existing alignment and, accordingly, outreach efforts have been focused on those areas where there will be more significant changes from existing structures (i.e. changes from wood poles to lattice steel towers).

PG&E identified and reached out to key stakeholders in the vicinity of these structure changes to solicit input and provide information about the project. In November 2018, PG&E contacted three property owners located next to poles that will be replaced with larger lattice steel towers to explain the proposed changes and receive feedback. None of the property owners contacted expressed concern regarding the project.

2.0 PROJECT DESCRIPTION

2.1 OVERVIEW

PG&E proposes to maintain electric transmission system reliability in the City of Eureka and surrounding areas by replacing the conductor and poles on approximately 7.8 miles of the existing 8.4-mile Humboldt Bay-Humboldt #1 60 kV Power Line (HB-H #1 line), a single-circuit power line between Humboldt Bay Substation, just south of Eureka, and Humboldt Substation, just east of Eureka. See Figure 2.1-1: Project Location. The Humboldt Bay-Humboldt 60 kV Reconductoring Project (project) will replace the existing lighter conductor (reconductor) with weather-resistant heavier conductor and supporting structures to reduce the frequency of outages, complete necessary maintenance, and address an existing curtailment issue to reinforce the existing power line system. Along the beginning approximately 0.6 miles of the project alignment, where the HB-H #1 line is in close proximity to the Humboldt Bay-Eureka 60 kV Power Line (HB-E line), PG&E also will also reconductor that line segment and install the new wire onto shared transmission towers to reduce the number of structures in wetland areas while complying with required ground-to-conductor and conductor-to-conductor clearance requirements. No substation work is anticipated as part of this project, with the possible exception of some minor changes to the switches inside Humboldt Bay Substation and Humboldt Substation.

2.2 PROJECT PURPOSE, NEED, AND OBJECTIVES

The project is an important maintenance project aimed at helping PG&E provide more than 71,000 households and businesses in the City of Eureka and surrounding Humboldt County with safe, reliable, and affordable energy. The project will improve transmission for the 60 kV power emanating from the existing Humboldt Bay Generating Station, which is an important source of electric power for the City of Eureka and provides approximately half of the electricity serving Humboldt County (Humboldt County 2010). Power generated at the 163- megawatt (MW) generating station is converted to transmission voltage at Humboldt Bay Substation and then transported by PG&E through a system of existing 60 kV and 115 kV power lines, including the following three 60kV lines:

- HB-H #1 line
- Humboldt Bay-Humboldt #2 60kV Power Line (HB-H #2 line)
- HB-E line

Figure 2.2-1: Existing Regional Transmission System, depicts the existing 60 kV and 115 kV power lines in the region.

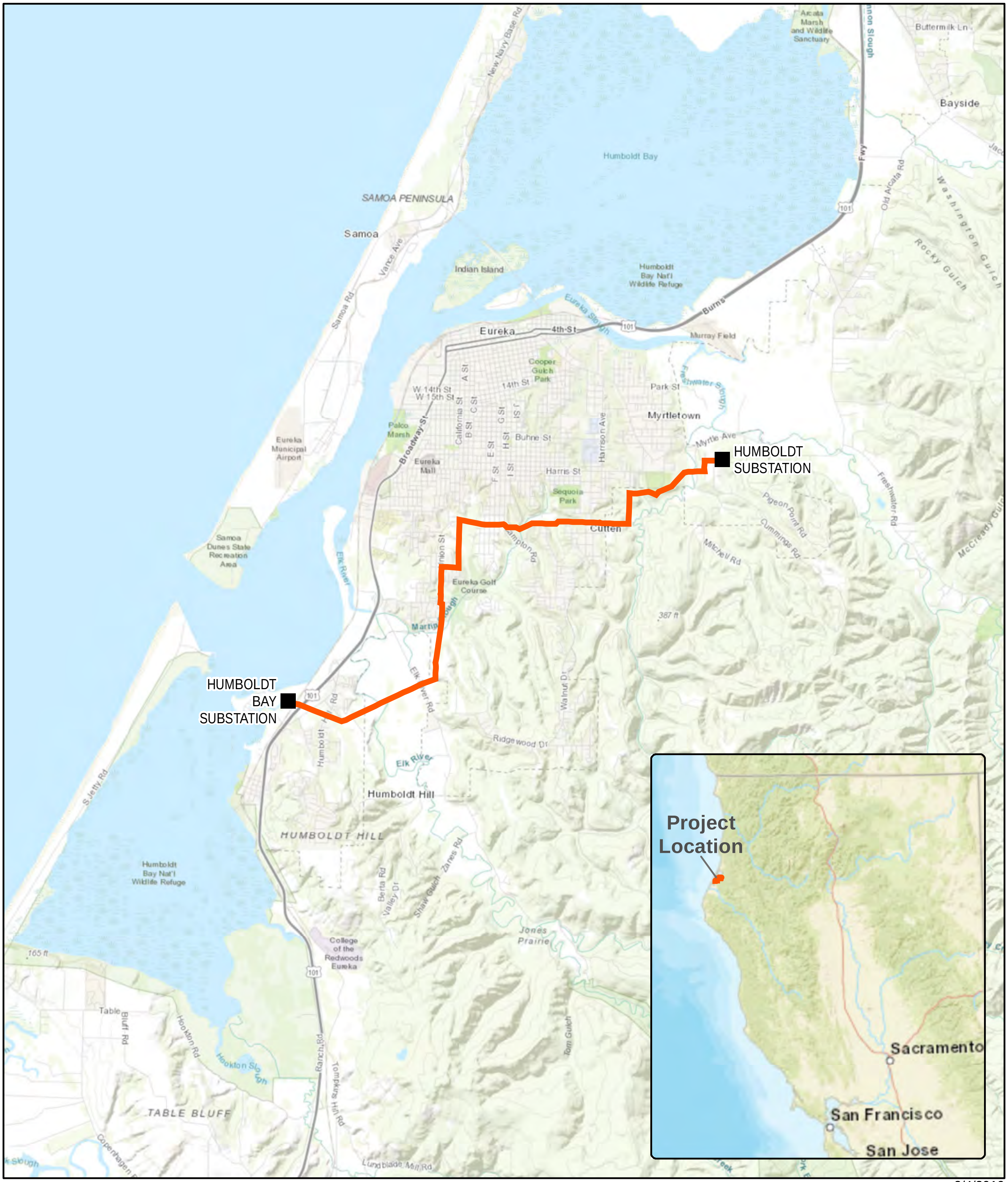
The conductors and associated hardware on the HB-H #1 line were installed in the late 1950's. To ensure continued reliable and safe operation of the system in the damp coastal climate, PG&E proposes to replace the existing structures along the HB-H #1 line and replace the existing lighter conductor with a heavier wire. The project will also address a curtailment issue at Humboldt Bay Generating System; in addition to providing power to and from Humboldt Bay Substation, the HB-H #1 line acts as a critical back tie to transmission system reliability in the event of an outage on the HB-H #2 and HB-E lines. When these lines are out, all of the 60 kV power produced at the Humboldt Bay Generating Station must be delivered through the HB-H #1 line. Power generation at the generating station must be curtailed when HB-H #1 is the sole line in operation due to the current size of the existing conductors; without curtailment, potential outages would result.

To prevent future outages, maintain transmission system and grid reliability, and provide sufficient back up capacity when one of the other two 60 kV lines on the system are out of service, PG&E proposes to replace the conductor on the HB-H #1 line and replace the existing structures to hold the new, heavier conductor. The proposed project will not only improve the reliability of the system, but also will address the curtailment issue caused when HB-H #1 acts as a critical back tie line, thereby improving reliability and service to area customers and eliminating the need for additional construction in the future to address the curtailment issue.

The objectives of the project are to:

- Maintain transmission system reliability and reduce the frequency of outages in the Eureka area by replacing the current conductors with heavier conductor.
- Maintain grid reliability in the Eureka area by strengthening the transmission system delivering power from the Humboldt Bay Generating Station.
- Increase back up capacity to reduce curtailment from Humboldt Bay Generating Station and/or outages when one of the other two 60 kV lines are out of service.
- Replace poles with new structures to hold the heavier conductor and to ensure compliance with California Public Utilities Commission (CPUC) General Order 95 (GO 95) requirements.
- Design and build the project in a safe, cost-effective manner that will also minimize environmental impacts.

The existing conductor, which has a diameter of 336 kcmil, will be replaced with a larger, 715.5 kcmil diameter conductor that will provide additional capacity to the HB-H #1 line. The heavier conductor will add to the operational flexibility of the line by reducing curtailment events at Humboldt Bay Generating Station, will better withstand coastal conditions, and will reduce future outages and necessary maintenance. Additional capacity is not estimated to be needed on a regular basis (i.e., when all three 60 kV lines are operating) for another approximately 10 years. However, installing 715.5 kcmil conductor now will avoid the need to come back in and replace the structures and conductor in the near future, which would cause an unnecessary second round of costs and impacts to landowners and wetland areas.



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 2_1-1 Project Location.mxd

2/4/2019

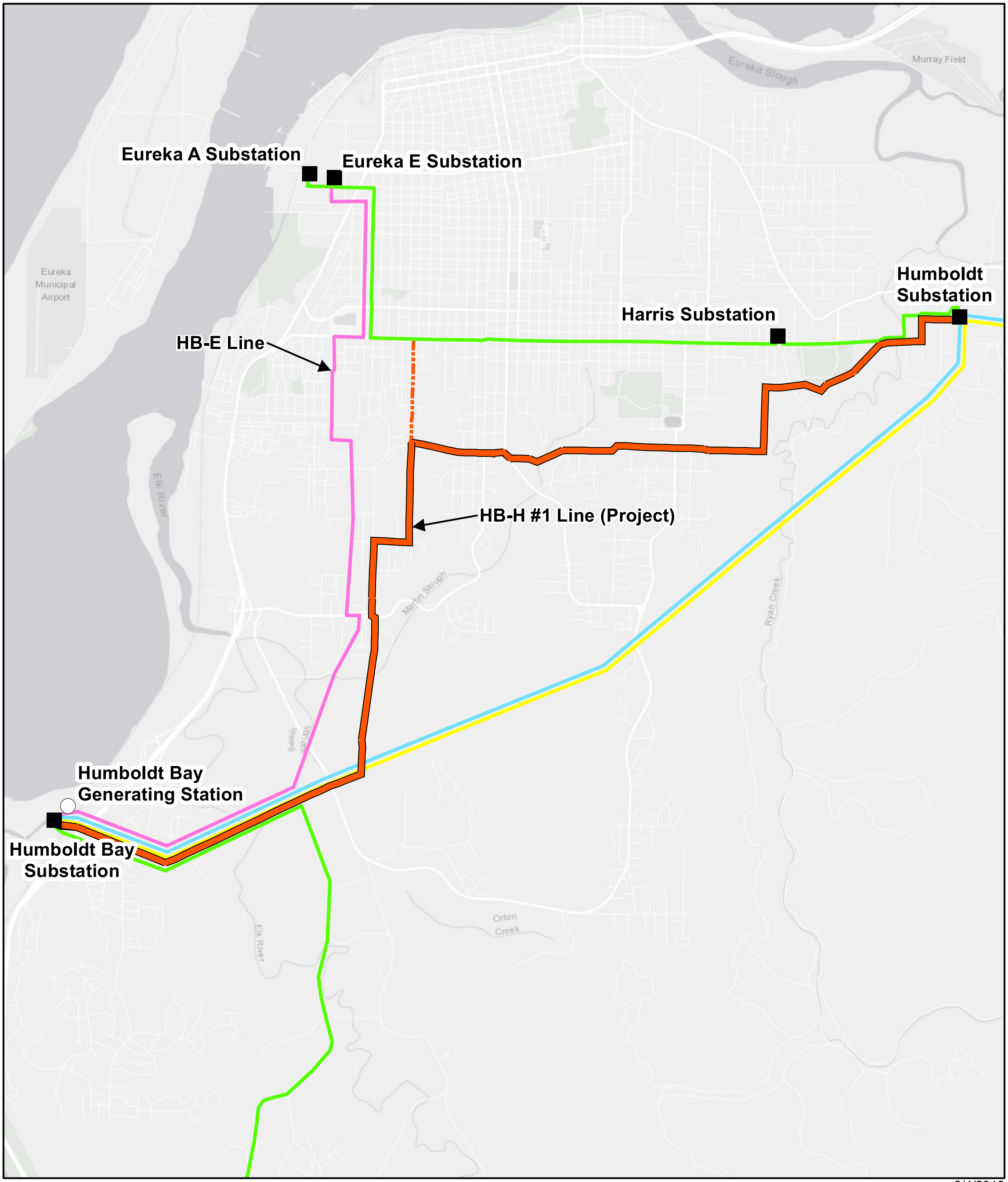
FIGURE 2.1-1
Project Location
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)
Substations

0 1 2
Miles

N

Results you can rely on



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 2_2-1 Existing Regional Transmission System.mxd

2/4/2019

Substations
Generation
Humboldt Bay-Humboldt (HB-H) #1 60 kV Power Line (Proposed Project)
Humboldt Bay-Humboldt #1 60 kV Tap (approximate)
Humboldt Bay-Humboldt #2 60 kV Power Line
Humboldt Bay-Eureka (HB-E) 60 kV Power Line
Other 60 kV Power Lines
115 kV Power Line

0 0.5 1
Miles

N

FIGURE 2.2-1
Existing Regional Transmission System
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

Results you can rely on

2.3 PROJECT LOCATION

The existing power line spans approximately 8.4 miles through unincorporated Humboldt County and the City of Eureka to connect Humboldt Bay Substation to Humboldt Substation. The line begins at PG&E's Humboldt Bay Substation, located just south of Eureka and west of Spruce Point in an industrial area west of US Highway 101 adjacent to the Humboldt Bay Generating Station. The line heads generally northeast through unincorporated Humboldt County, crossing four waterways (Buhne Slough, Elk River, Martin Slough, and Ryan Slough) and approximately 0.4 mile of the City of Eureka, then back through Humboldt County to PG&E's Humboldt Substation, located east of Eureka near Myrtle Avenue.

Figure 2.3-1: Project Overview provides additional detail regarding the project route. From Humboldt Bay Substation (1000 King Salmon Avenue, Eureka, California 95503), the existing power line extends east approximately 0.6-mile, crossing intertidal wetlands, US Highway 101, Hill Road and Humboldt Hill Road. East of Humboldt Hill Road, the line continues in an easterly and then northerly direction for approximately 2.0 miles through predominantly agricultural lands, crossing the floodplains of the Elk River and Martin Slough. The line continues north for approximately 1.5 miles through residential areas within unincorporated Humboldt County. East of Bacchetti Drive the line splits and continues in two directions—northward and eastward. The short line that extends northward is not being reconductored as part of this project. The eastward line extends for approximately 1.7 miles through residential areas—including within the City of Eureka—while also crossing forested slopes associated with the headwaters of Martin Slough. East of the City of Eureka, the line continues eastward for approximately 1.5 miles, passing through the McKay Community Forest and near recreational facilities including trails, a ballfield, and fairgrounds. Emerging from the forest, the line continues east for approximately 0.5 mile, crossing Ryan Slough and a rural residential area in Humboldt County before terminating at Humboldt Substation (3221 Mitchell Heights Drive, Eureka, California 95503).

2.4 EXISTING SYSTEM

As detailed in Section 2.2, power generated at Humboldt Bay Generating Station is transported through 60 kV and 115 kV power lines that connect to substations in the region and from which electricity is delivered to customers. The HB-H #1 line, the HB-H #2 line, and the HB-E line together form a power path that includes Humboldt, Harris, and Eureka A and E substations, serving customers in the City of Eureka and the surrounding unincorporated areas of Humboldt County. The HB-H #1 line is critical to transmission system reliability in the event of an outage on either the HB-H #2 line or the HB-E line. Figure 2.2-1: Existing Regional Transmission System illustrates the regional transmission system that extends from Humboldt Bay Generating Station. The project will not change the configuration of the existing system but, rather, will reinforce an existing section of it.

\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 2_3-1 Project Overview.mxd

2/4/2019

- Replace Pole
- New Lattice Tower
- New TSP
- Replace Existing Wood with Engineered Direct Embedded Pole
- Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)
- City of Eureka
- Humboldt County Boundary

0 ½ 1
Miles

N

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FIGURE 2.3-1
Project Overview
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

2.5 PROPOSED PROJECT

2.5.1 HUMBOLDT BAY-HUMBOLDT #1 POWER LINE

To ensure the continued operation of the HB-H #1 line, PG&E will:

- Replace approximately 7.8 miles of bare single-circuit 60 kV conductors (4 miles of aluminum and 3.7 miles of copper) and insulators with a larger-diameter aluminum, specular conductor that will be more resistant to corrosion in the coastal environment and will address the curtailment issue at Humboldt Bay Generating Station when both of the other lines are out of service;
- Remove approximately six wood poles from wetland areas and replace approximately 90 existing wood poles with approximately 55 wood poles and 35 LDS poles, approximately one tubular steel pole (TSP) and approximately four lattice steel towers (LSTs)[1];
- Replace approximately eight LDS poles with five wood poles and three LDS poles;
- Add one new wood interset pole with down guys;
- Reframe or replace insulators on approximately 10 existing poles to meet current GO 95 requirements;
- Replace an existing manual switch with a SCADA (supervisory control and data acquisition) switch on a new engineered direct embedded steel pole replacing a wood pole;
- Replace approximately seven existing stub wood poles with seven wood stub poles;
- Shorten approximately four wood poles (with a distribution underbuild); and
- Transfer existing distribution lines, communication facilities, and streetlights from existing poles to new poles or structures.

2.5.2 HUMBOLDT BAY-EUREKA POWER LINE

For the first approximately 0.6-mile east of Humboldt Bay Substation, the existing HB-E line parallels the HB-H #1 line on a separate line of wood poles. Along this segment, PG&E will:

- Relocate the first span of the HB-E line immediately east of Humboldt Bay Substation to a new TSP; co-locate the HB-E line with the HB-H #1 line on its four new LSTs and replace the existing conductor.
- Remove approximately seven wood poles and shorten three wood poles (with distribution underbuild), which will reduce the number of structures within the wetlands.

[1] The LSTs will be installed approximately 80 feet north of the current HB-H #1 alignment to allow the HB-H #1 to remain energized while the LSTs are installed and to meet PG&E standards with respect to separation distance from a gas pipeline in the existing alignment.

2.5.3 HUMBOLDT BAY-HUMBOLDT #2 POWER LINE

Immediately east of Humboldt Bay Substation, PG&E will:

- Remove a single wood pole from wetland areas and move the line onto the new double circuit TSP on the HB-E line.

Relevant features within the project footprint, including all construction areas, project components, access routes, temporary work areas, and helicopter landing zones, are shown on the maps in Figure 2.8-1: Preliminary Work Areas and Access Roads.

2.6 PROJECT COMPONENTS

2.6.1 REPLACEMENT CONDUCTOR

PG&E will replace existing conductors and connectors along approximately 7.8 miles of the single-circuit HB-H #1 line and 0.6 miles of the adjacent HB-E line with more substantial (larger diameter) aluminum conductors to better withstand the coastal climate, reduce future maintenance requirements on the line, and address an existing curtailment issue at Humboldt Bay Generating Station. The new conductor will result in increasing from 36 to 73 MW summer normal rating. Although additional capacity in the area will not be needed for the next approximately 10 years, the larger-diameter conductor will address both coastal conditions and the curtailment issue at Humboldt Bay Generating Station. Specifically, the additional capacity will help address load generation issues during an outage of one of the other two adjacent power lines. The ratings of the replacement conductor and existing conductor are shown below in Table 2.6-1: Conductor Ratings. Existing insulators on tangent structures will primarily be replaced with composite insulators, and insulators on dead-end and other structures will primarily be replaced glass or ceramic insulators, including insulators on the new LSTs.

Table 2.6-1: Conductor Ratings

Conductor	Summer Coastal Rating (Amperes)	Winter Coastal Rating (Amperes)
715.5 kcmil 37/0 Violet (Replacement)	Normal: 703 A Emergency: 802 A	Normal: 972 A Emergency: 1,039 A
2/0C copper (Existing)	Normal: 310 A Emergency: 350 A	Normal: 415 A Emergency: 443 A
336 AAC (Existing)	Normal: 440 A Emergency: 499 A	Normal: 599 A Emergency: 639 A

2.6.2 REPLACEMENT AND MODIFIED STRUCTURES

The existing treated wood poles and LDS poles will be replaced primarily with wood poles and LDS poles, except for certain structure types described below. Types of replacement poles are described below, and construction methodologies and specifications are detailed in Section 2.8.5 Power Line Construction. Tangent poles, which do not require any external type of support, will be used when the run of poles continues in a straight line. Dead-end poles, which are stronger, will be used at the end of each reel of conductor (approximately 4,500 feet) or at angle changes or high strain locations.

Distances between any two consecutive poles or towers (spans) will vary between approximately 33 feet and 1,022 feet. Increased span length and pole and structure heights are necessary to accommodate the new conductor sway and suspension style, provide adequate ground-to-conductor clearance (including spans across water crossings, roads, and US 101), and to reduce the number of replacement structures in wetlands. Pole designs and conductor separation distance will meet raptor safety requirements.

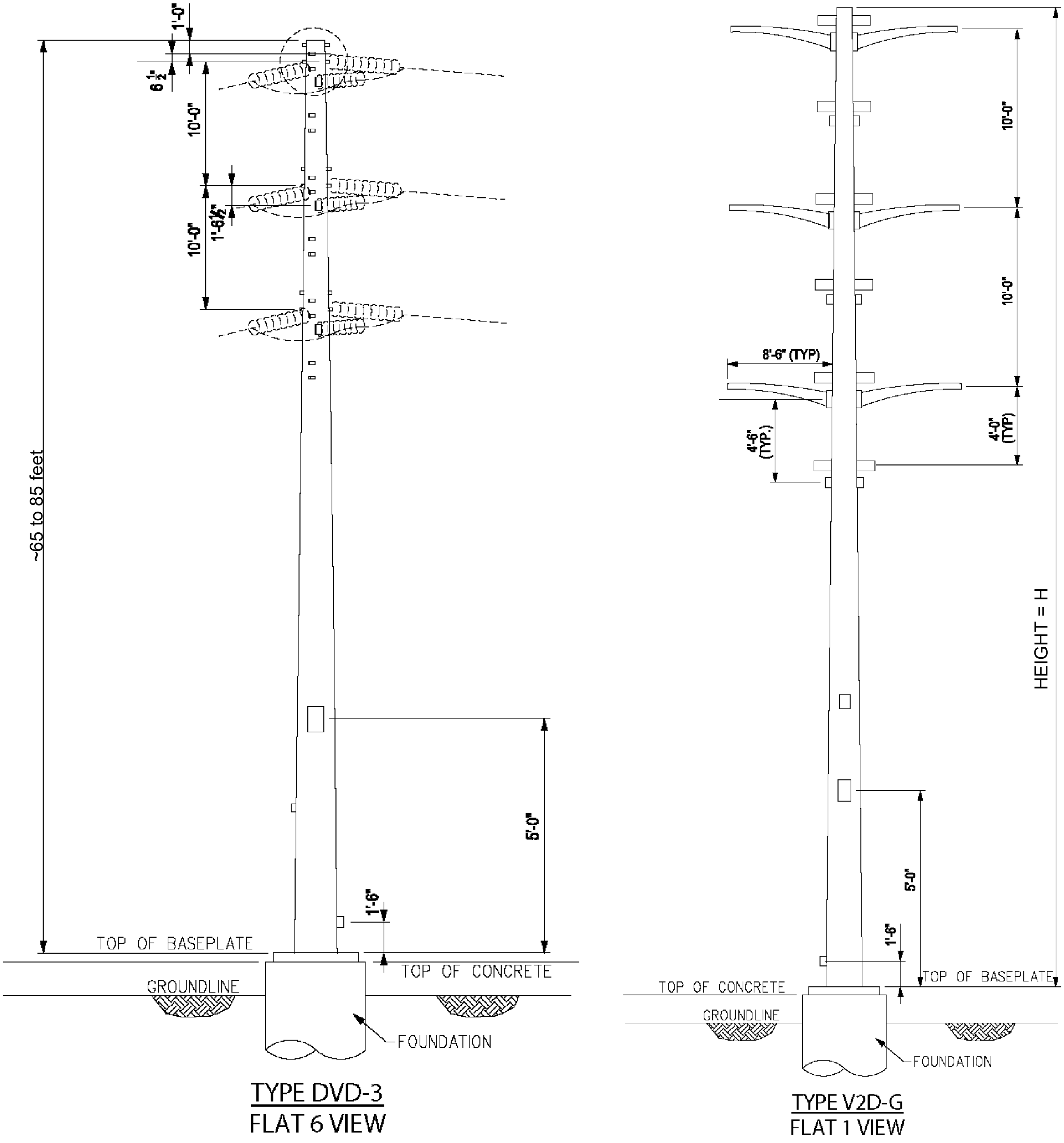
Replacement TSPs and LSTs will be installed on foundations, requiring a total of approximately 180 cubic yards of concrete. Replacement TSPs, LDS poles, and LSTs will be galvanized and dull gray in color. The typical design of new poles is shown in Figure 2.6-1: Typical Tubular Steel Poles, Figure 2.6-2: Typical Lattice Steel Tower, Figure 2.6-3: Typical Wood and Light Duty Steel Pole Framing, and Figure 2.6-4: Engineered Direct Embedded Pole with Switch. The structures in the first 0.6-mile will support a double circuit line, with three conductors on each side. One TSP will be double circuit and the other a single circuit. Along the remainder of the project alignment (approximately 7.2 miles), replacement structures will support a single circuit line consisting of three conductors, typically with one conductor on each side of the pole and one above the pole. The existing poles will be removed following installation of the new poles and conductors and will be disposed of at an appropriate landfill. A few structures will be left in place and shortened or "topped" to support distribution or communication lines as described below in Section 2.6.3.

2.6.2.1 Tubular Steel Poles

Approximately two new TSPs will be installed on PG&E property adjacent to Humboldt Bay Substation—one will support the HB-H #1 line, and the other will support both the HB-H #2 line and the HB-E line, which will allow two existing wood poles to be removed. The replacement TSPs for this project will range in height from approximately 67 feet to 77 feet tall and will be galvanized and a dull grey color. The TSPs will be approximately 3 feet in diameter at the base and will be attached to a concrete foundation measuring approximately 6 feet in diameter. A typical TSP design is shown below in Figure 2.6-1: Typical Tubular Steel Poles.

2.6.2.2 Lattice Steel Towers

Approximately four new double-circuited LSTs with heights ranging from approximately 85 feet to 115 feet will be installed within the existing transmission line easement at the southern end of the project to replace twelve existing structures. The LSTs will be approximately 20 to 28 square feet at the base, and installed on four footings. Each concrete footing for a drilled pier foundation will be approximately 6 feet in diameter. Micropile foundations will have an array of four micropiles at each leg. The diameter of the micropile array will be approximately 2.5 feet, and will be covered by a steel cap, approximately 40 inches in diameter. The steel will be galvanized and a dull grey color. The typical LST design is shown in Figure 2.6-2, Typical Lattice Steel Tower. Each of the four LSTs will support both the HB-H #1 line and the HB-E line.



Preliminary, Approximate, and Subject to Change

\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 2_6-1 Typical Tubular Steel Pole.mxd 2/4/2019

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FIGURE 2.6-1
Typical Tubular Steel Pole
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

2.6.2.3 Wood and Light-Duty Steel Poles

Approximately 90 existing wood poles will be replaced with 55 wood poles and 35 LDS poles. Approximately eight LDS poles will be replaced with three LDS and five wood poles, and one new interset wood pole will be installed to simplify the design of guy wires where the line makes a 90 degree turn. Some replacement poles will be taller or of a higher pole class than the existing poles, and some new poles will be shorter than the poles they replace. Replacement poles will be located within the existing alignment and within approximately 5 to 10 feet of the current location. The existing poles range in height from approximately 44 to 73 feet above ground, and replacement poles for this project will range from approximately 47 to 90 feet in height above ground. The LDS poles will be galvanized and dull gray in color. The replacement wood and LDS poles will be direct-buried and will not have foundations. Typical framing for the wood and LDS replacement poles is shown in Figure 2.6-3: Typical Wood and Light Duty Steel Pole Framing.

2.6.2.4 Engineered Direct Embedded Pole

An existing wood pole on the HB-H #1 line approximately 250 feet east of Campton Road will be replaced with an engineered direct embedded pole (EDP). A SCADA switch will be installed on the EDP to replace an existing manual switch currently located on another pole. The galvanized steel pole will be approximately 70 feet long and embedded approximately 16 feet, making it approximately 54 feet tall. A typical engineered direct embedded pole design with a switch is shown below in Figure 2.6-4: Engineered Direct Embedded Pole with Switch.

2.6.2.5 Stub Poles

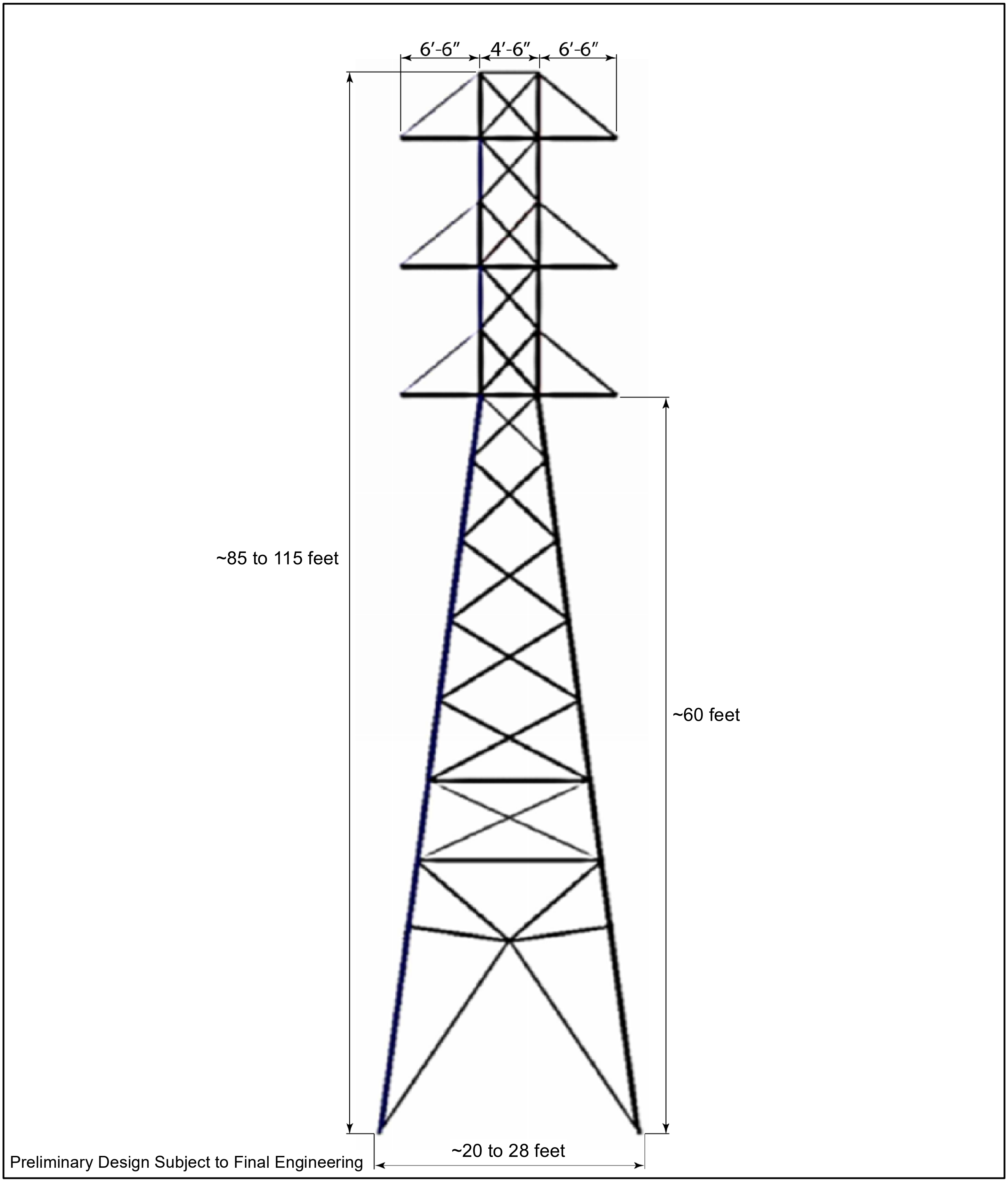
Stub poles are permanent poles that provide an anchor for the pole supporting the power line. Approximately seven short wood “stub” poles with down and span guy wires will be replaced with new stub poles and guy wires. Stub poles are approximately 20 to 42 feet in height and 11 to 16 inches in diameter at ground level.

2.6.2.6 Existing Utility Relocations

The existing underbuilt 12 kV distribution lines and communication lines on the existing poles will be transferred to the new poles when spans are short enough, or will be left in place on the existing pole. PG&E will “top” or shorten existing poles left in place to support distribution and communication lines after the power line conductors are removed. The project will not involve installation of any new co-located infrastructure with the replaced conductor.

2.6.3 SUBSTATIONS

No substation work is anticipated as part of this project, with the possible exception of some minor changes to the switches inside the substations.



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 2_6-2 Typical Lattice Steel Tower.mxd

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FIGURE 2.6-2
Typical Lattice Steel Tower
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

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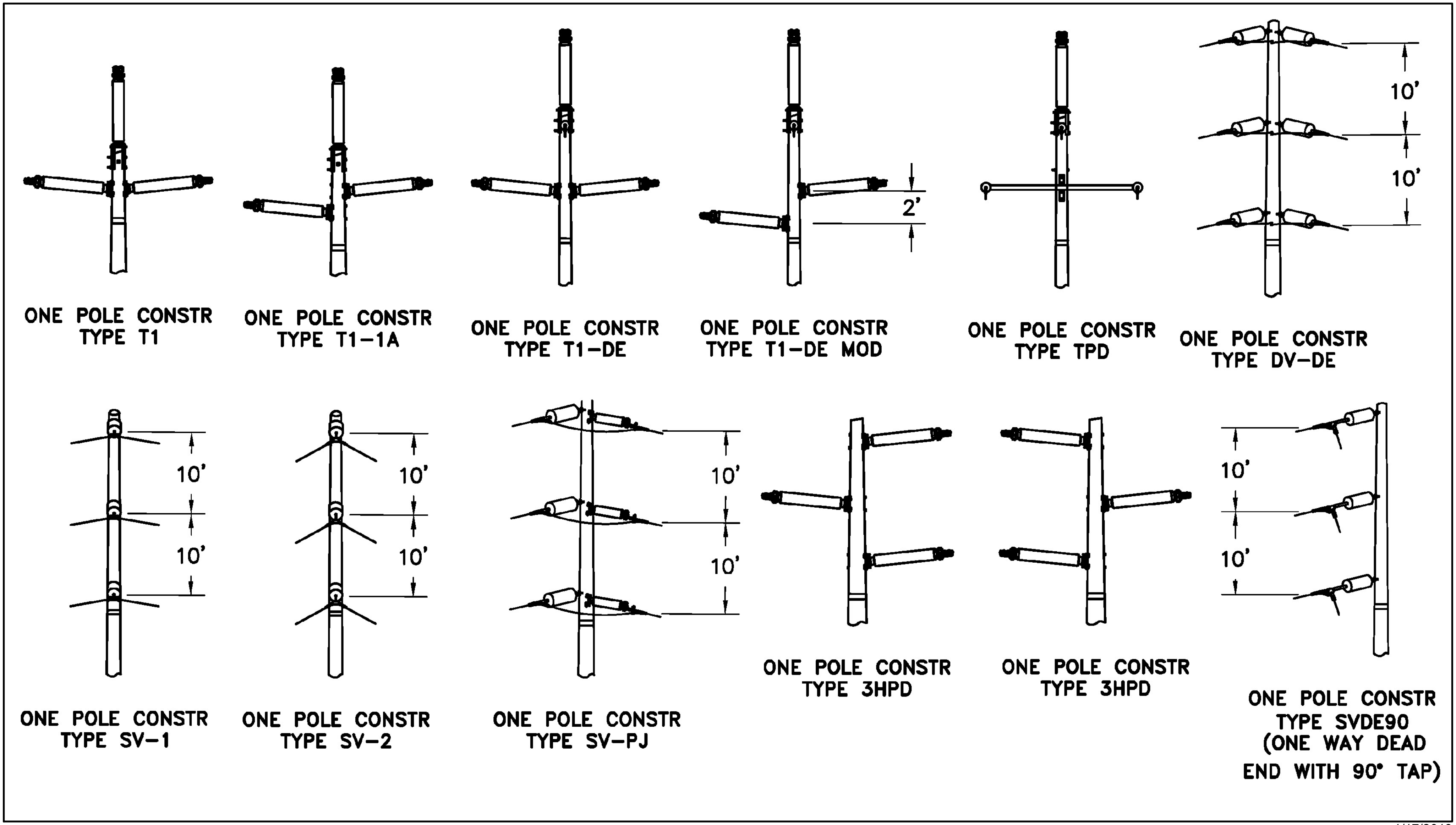

\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 2_6-3 Wood and LDS Pole Framing.mxd 1/17/2019

Preliminary, Approximate, and Subject to Change

FIGURE 2.6-3

Wood and LDS Pole Framing

Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

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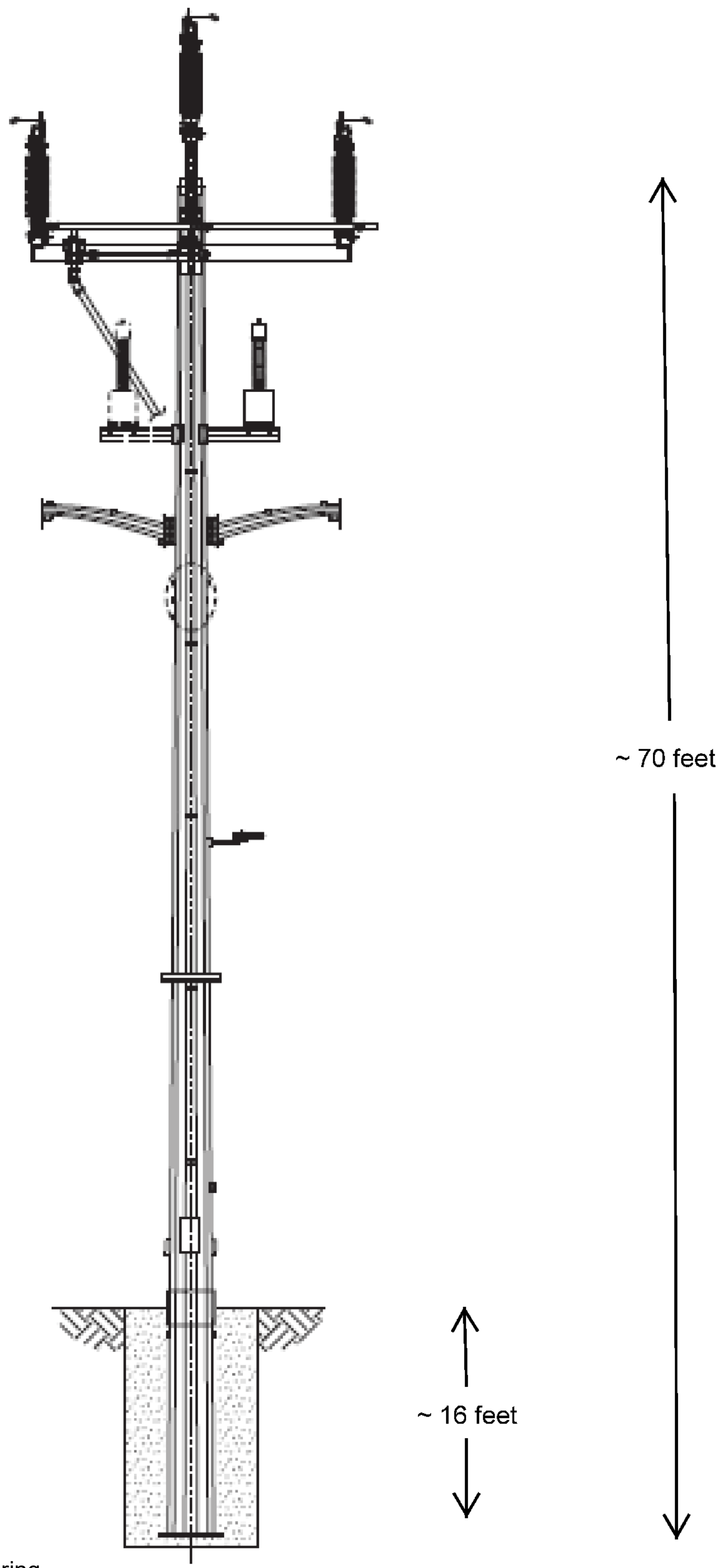

Preliminary Design Subject to Final Engineering

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FIGURE 2.6-4
Engineered Direct Embedded Pole with Switch
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

2.7 RIGHT-OF-WAY REQUIREMENTS

Land entitlement issues are not part of this regulatory proceeding in which the CPUC is considering whether to grant or deny PG&E's application for a Permit to Construct to upgrade existing facilities. Rather, any land rights issues will be resolved in subsequent negotiations and/or condemnation proceedings in the proper jurisdiction, following the decision by the CPUC on PG&E's application (See Jefferson-Martin 230 kV Transmission Project, A.02-04-043, D.04-08-046, p. 85).

The existing HB-H # line is located within existing PG&E right-of-way (ROW) and PG&E easements ranging from 10 feet to 40 feet wide, or in city or county streets. PG&E anticipates using the existing alignment throughout the project, and accordingly, no new easements are anticipated at this time for the reconductoring work. However, PG&E may update or clarify its existing easement rights prior to construction. Temporary construction easements may be obtained to accommodate pull sites, staging areas, and landing zones located outside of existing easements or ROWs.

Encroachment permits may be required for work performed within city and/or county streets and where the power line crosses roadways. Because permit requirements vary between the relevant city, county, and state agencies, PG&E will work closely with each agency to obtain any necessary encroachment permits. An encroachment permit will be required from the California Department of Transportation (Caltrans) for the crossing of US Highway 101.

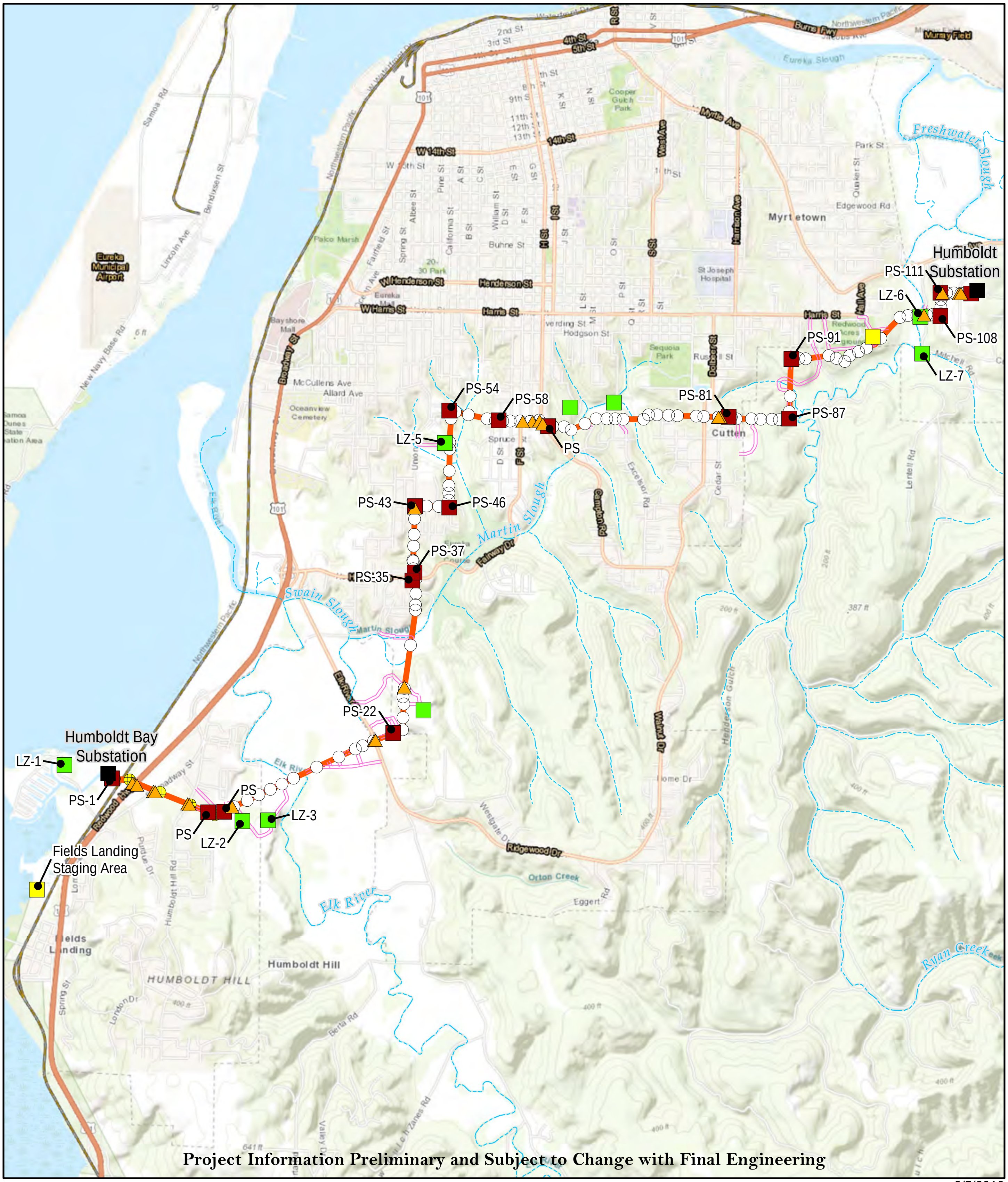
2.8 CONSTRUCTION

2.8.1 WORK AREAS

This section describes typical work areas that are needed to construct the project. The following discussion is preliminary and based on typical construction practices and anticipated construction needs. Final design may require modifications to the expected work areas described herein; however, impacts associated with potential refinements are not anticipated to differ. As described below, temporary work areas will be required at towers and poles, at pull sites, for staging, and for helicopter landing zones, which may also be used as staging areas. Contouring, grading, and rocking may be required to create stable and level work areas. Vegetation clearance and matting (or plating) of drainage crossings may be required for vehicle access to staging areas. Following construction, work areas will be returned to pre-project conditions in accordance with storm water plans, discretionary agency permits, and according to landowner preferences, as appropriate. Pole replacement construction activities will require limited grading (approximately 1 acre along the entire project).

2.8.1.1 Staging Areas

Temporary staging areas, shown in Figure 2.8-1, will be used for a variety of purposes, including storing construction materials and equipment, parking of vehicles and equipment, meeting areas, and other project-related purposes. The locations of staging areas are preliminary and subject to change with final engineering, CPUC requirements, and ground conditions at the time of construction.



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 2_8-1 Preliminary Work Areas and Access Roads.mxd

2/5/2019

- Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)
- Replace Pole
- New Lattice Tower
- New TSP
- Replace Existing Wood with Engineered Direct Embedded Pole
- Staging Area
- Pull Site (PS)
- Landing Zone (LZ)
- Guard Structures
- Access Routes

0 ½ 1
Miles

N

FIGURE 2.8-1
Preliminary Work Areas and Access Roads
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

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The following locations have been preliminarily identified as potential staging areas:

- A previously disturbed area in Fields Landing;
- A parking lot west of Humboldt Bay Substation;
- A disturbed area in the eastern portion of Redwood Acres Fairgrounds;
- A parking lot at the Elks Lodge, Eureka;
- A field along an existing access road accessed by Golden West Road, Eureka;
- A field accessed along an existing access road from Union Street in Humboldt County;
- A field accessed off J Street in Eureka;
- A field accessed off O Street in Humboldt County;
- A field along an existing access road off Elk River Road, Eureka;
- A field along the project alignment in the vicinity of Ryan Slough; and
- A field on the south side of the project alignment along Mitchell Road, Eureka.

Other staging areas within the project area may be identified closer to construction. All staging areas will generally be between approximately 0.5 and 1.5 acres in size. The proposed staging areas are relatively flat and accessible by existing access routes or overland routes. Temporary fencing (such as cyclone-type fencing) may be installed around the perimeter and temporary electrical service (a temporary utility drop or portable generator) may be installed at staging areas. Portable sanitation facilities may also be placed at the staging areas.

2.8.1.2 Tower and Pole Work Areas

Wood and LDS pole removal, assembly, and installation is expected to occur in an approximately 0.3-acre work area at the base of each pole within the existing alignment. Some work areas will be smaller due to topographical constraints and where sensitive resources can be avoided. Each new pole will be delivered and staged next to the pole that it will be replacing. Where pole sites are not accessible by ground equipment, new poles will be installed by a combination of helicopter and ground crews. The use of helicopters also will help to minimize ground disturbance in marsh wetland within the first few structures along the alignment near Humboldt Bay Substation. In addition, construction will be completed in the dry season, when possible, to help reduce impacts to existing wetlands within the alignment. Depending on site-specific conditions at the time of construction, other construction methods may be employed to reduce ground disturbing impacts, including but not limited to, staging construction equipment on temporary matting. Temporary matting may be placed within work areas depending on surface conditions at the time of construction.

2.8.1.3 Pull Sites

Pull sites will be established at multiple locations throughout the project to facilitate reconductoring and will be selected to avoid or minimize impacts on sensitive resources. Approximately 14 pull sites will be located along the project alignment. Based on the configuration of the existing alignment, the average distance between pull sites will be approximately 0.5 mile. These pull sites will be used during construction to stage conductor-pulling trucks and conductor reel trucks to install the new conductors onto new structures. Each site will have a footprint of up to approximately 1 acre, ranging in size from 300 feet x 100 feet to as small as 80 feet x 40 feet. Pull sites may also be used as staging areas for equipment and material storage.

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

2.8.1.4 Helicopter Landing Zones

Preliminary helicopter landing zones have been identified along the project alignment for helicopters used to reduce potential impacts to biological resources and adjacent landowners. The staging areas listed above also may be used as helicopter landing zones with the exception of the staging area located at Redwood Acres Fairgrounds.

Helicopter landing zones will be used to support helicopter operations (e.g., transport materials to and from construction sites), as well as facilitate other project activities, including, but not limited to, staging and storing construction materials and equipment, refueling, and assembling construction materials. Overland access routes or existing paved roads will provide ground access to helicopter landing zones.

Helicopters, such as a Blackhawk- (load capacity 8,000 pounds), Bell 214 (load capacity 6,000 pounds), or similar model, will be used during the project.

The helicopters will be used to minimize wetland impacts during construction of tower foundations and structures, to top and remove poles, and to replace poles in steep or inaccessible terrain. The helicopters will transport equipment, pole and tower materials, and construction workers from helicopter landing zones to sites along the alignment. The helicopter(s) may be stored overnight and refueled at the Murray Field Airport northeast of Eureka.

PG&E will comply with all Federal Aviation Administration (FAA) regulations regarding helicopter use. The helicopter landing zones are located so that helicopters will avoid flying poles or other cargo over residences. In the unlikely event that the final construction plan requires otherwise, PG&E will submit a Lift Plan to the FAA, if required, and coordinate with potentially affected residents to minimize the duration of the necessary work and any inconvenience to nearby residents. The helicopter landing zones are also situated close to the project alignment to shorten the helicopter flight path. PG&E will prepare a Helicopter Use Plan and submit it to the CPUC before construction to identify the specific flight path and types of helicopters to be used.

Any need for highway or roadway closures or rolling stops when helicopters are flying over with materials will be coordinated with the appropriate jurisdictions. Applicant Proposed Measures (APMs) to avoid and minimize potential impacts from helicopter use are listed in Section 2.11, Applicant Proposed Measures, and in Section 3.16, Traffic and Transportation.

2.8.1.5 Guard Structure and Snub Pole Work Areas

To prevent the conductor from sagging onto other utility lines or roads during construction, 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 and/or major roadways during construction. Snub poles will be installed in pull sites to facilitate pulling operations. A work area up to approximately 0.03 acre in size will be required for each guard structure.

2.8.2 ACCESS ROADS

Construction materials will be delivered using line trucks, other typical construction vehicles, and helicopters, and staged near existing structures. Construction vehicles are anticipated to access work areas on existing access routes, overland if conditions permit, or across temporary rig mat roads, except where steep terrain is present. Temporary matting (e.g. rig mat or timber road) is anticipated to be used for accessing three of the four tower locations given the existing surface conditions. Temporary matting also may be used to access other work areas depending on surface conditions at the time of construction. Poles located on steep terrain will be accessed by using All-Terrain Vehicles (ATVs), by walking to the project site from the nearest access route or along the alignment, or by helicopter. Road types for project use and associated potential improvements are listed in Table 2.8-1: Access Summary Table.

Table 2.8-1: Access Summary Table

Road Type	Description	Potential Improvements Required
Existing Paved Road	Typically, highway or two-lane county road	None
Existing Dirt/Gravel Road	Typically, previously graded road with a dirt or gravel base	Minor road repair and maintenance, as needed
Existing Unpaved Road Requiring Improvement	Typically, an unmaintained previously graded road with a dirt or gravel base	Vegetation removal, grading, filling, or other repair and maintenance, as needed
Temporary Overland Route	Typically, relatively flat grassy areas	Installation of rig or timber mats, as needed

2.8.3 VEGETATION CLEARANCE

PG&E regularly maintains vegetation growing within the transmission line alignment and regularly uses access routes to comply with utility best management practices (BMPs) and vegetation clearance requirements. Fast-growing thickets of shrub and tree vegetation are common in coastal Humboldt County and PG&E anticipates that selective brushing and trimming will be required across the length of the project using chain saws and mowers to accommodate the project. Initial estimates are that approximately 20 trees ranging between 4 inches and 16 inches diameter at breast height will need to be removed, and approximately 24 trimmed. Tree species to be removed include Bishop pine (*Pinus muricata*), red alder (*Alnus rubra*), elderberry (*Sambucus* spp.), redwood (*Sequoia sempervirons*), and maple (*Acer* spp.).

PG&E expects overgrowth to be occasionally encountered along access routes and will clear or brush as necessary to reestablish access for construction. Access improvements that require clearing of vegetation will be completed according to PG&E's vegetation management practices to ensure access is safe, and to minimize impacts to biological and cultural resources, if any.

2.8.4 Erosion and Sediment Control and Pollution Prevention during Construction

Construction will include ground-disturbing activities, including some grading and vegetation clearing to establish safe and level construction work areas and to improve access roads. Small, temporary stockpiles of excavated soil may be located near the excavations for TSP foundations, the drilled tower foundations, and wood or LDS poles. The total estimated volume of soil to be excavated (not including micropiling) is approximately 445 cubic yards. These materials will be used to backfill the holes left by removal of the existing wood and LDS poles. Excess spoils of native material will be stabilized on-site consistent with the Storm Water Pollution Prevention Plan (SWPPP) prepared for the project. Stockpiles will be located away from or downgradient from waterways, and other sediment control BMPs will be implemented to manage temporary stockpiles. Micropiling of the LST foundations will generate approximately 10 cubic yards of soil per structure, which is directed by the discharge hose into a dumpster for off-site disposal;

PG&E will obtain coverage under the State Water Resources Control Board (SWRCB) General Permit for Storm Water Discharges Associated with Construction Activity Order Number 2009-0009-DWQ (General Permit) for construction activities. To obtain coverage under the General Permit, PG&E will develop and submit permit registration documents—including a Notice of Intent, a SWPPP, a risk assessment, a site map, certification, and an annual fee—to the SWRCB prior to initiating construction activities.

In conjunction with the SWPPP, appropriate BMPs will be developed to ensure that construction activities do not degrade surrounding water quality through erosion, sediment run-off, and other pollutants. These BMPs then will be implemented and monitored throughout construction. Water for dust control or other uses will be obtained from hydrants situated along the project route.

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

Construction debris, including removed LDS and wood poles, will be transported to a PG&E service center for recycling or disposal. Wood poles and sawdust will be collected in accordance with PG&E hazardous waste guidelines and disposed of pursuant to state and federal requirements.

2.8.5 Power Line Construction

TSPs, LSTs, and wood and LDS poles will be installed as part of the project. Details related to installing these structures are presented below in Table 2.8-2: Summary of Typical Structure Dimensions. A summary of typical equipment used for each construction activity is provided in Table 2.8-3: Power Line Construction Anticipated Personnel and Equipment.

Table 2.8-2: Summary of Typical Structure Dimensions

(Preliminary Engineering Subject to Final Design)

Structure Feature	Structure Type[2]	Approximate Metrics
Approximate Pole Diameter (Tip)	Wood Pole	8 to 11 inches
	Light Duty Steel Pole	8 to 12 inches
	Tubular Steel Pole	20-30 inches
	Lattice Tower	N/A
Approximate Pole Diameter (Base)	Wood Pole	15 to 22 inches
	Light Duty Steel Pole	15 to 22 inches
	Tubular Steel Pole	36 inches
	Lattice Tower	N/A
Approximate Length	Wood Pole	55 to 100 feet
	Light Duty Steel Pole	55 to 95 feet
	Tubular Steel Pole	65 to 75 feet
	Lattice Tower	85 to 115 feet
Approximate Auger Hole and Foundation or Pole Depth (below ground)	Wood Pole	7 to 11 feet
	Light Duty Steel Pole	8 to 14 feet
	Tubular Steel Pole	30 feet
	Lattice Tower	20 to 30 feet drilled pier / 60 feet micropile
Approximate Height Above Ground	Wood Pole	47 to 90 feet
	Light Duty Steel Pole	43 to 83 feet
	Tubular Steel Pole	67 to 77 feet
	Lattice Tower	85 to 115 feet
Maximum Excavation	Wood Pole	78 Cubic feet
	Light Duty Steel Pole	135 cubic feet
	Tubular Steel Pole	850 cubic feet
	Lattice Tower	270 to 3400 cubic feet
Approximate Footprint of pole or Foundation (Permanent)	Wood Pole	1 square feet
	Light Duty Steel Pole	1 square feet
	Tubular Steel Pole	28 square feet
	Lattice Tower (each footing)	28 square feet (drilled) /

[2] Wood stub poles are not included in this table. These poles are similar to wood poles used to support conductor but are shorter in height (approximately 20 to 42 feet).

Table 2.8-2: Summary of Typical Structure Dimensions

(Preliminary Engineering Subject to Final Design)

Structure Feature	Structure Type[2]	Approximate Metrics
		5 square feet (micropile array); 35 square feet (cap)
Approximate Pole/Tower Work Area (Temporary)	Wood Pole	0.2 acre
	Light Duty Steel Pole	0.3 acre
	Tubular Steel Pole	0.3 acre
	Lattice Tower	0.3 acre

2.8.5.1 Installing Lattice Steel Towers

Installing the four new LSTs will be performed by either the drilled pier method or the micropile method. Each LST will require four foundations. Drilled pier foundations will have a diameter of approximately 6 feet and will range between approximately 20 and 30 feet deep. Each micropile foundation will consist of four micropiles approximately 7 inches in diameter and 60 feet deep, which will form a micropile array approximately 2.5 feet in diameter that will be covered with a steel cap measuring approximately 40 inches in diameter.

Drilled Pier

It is anticipated that the fourth LST along the alignment (LST 4) will be installed using the drilled pier technique as the site is easily accessible overland. The third LST (LST 3), located immediately east of Humboldt Hill Road, also may be installed using the drilled pier technique. This technique will require an area of approximately 100 by 100 feet (0.3 acre) at each location. Matting will be used to provide both a stable work area and access to the work area, as needed. A drilled foundation is constructed by boring a hole into which concrete is poured and anchor bolts are set. Excavation for the foundation for each leg will take approximately 2 days per tower leg if conditions are dry (eight days total per LST), or three to four days per tower leg if groundwater is encountered (14 days total per LST). Drilling fluids will be disposed of using a mud recycler. Excess spoils will be hauled off site for disposal or used elsewhere on the project as fill, as appropriate. If dewatering is necessary during excavation, water will be discharged to the surface in compliance with applicable regulations or discharged to a portable tank or other container and disposed off-site in compliance with any applicable state and federal regulatory standards.

Micropiling

It is anticipated that the two LSTs immediately east of Humboldt Bay Substation and possibly the third LST, located immediately east of Humboldt Hill Road, (LSTs 1, 2, and 3), will be installed using the micropiling technique in order to minimize the area of ground and wetland disturbance. If feasible, construction will be scheduled to occur during the dry season. This technique will require a work area with a radius of approximately 25 feet around each tower leg (slightly more if a dumpster is used for cuttings management). Matting will be used to provide both a stable work area and access to the work area, as needed. If the access and work areas are very wet, a helicopter may be used to transport all equipment, materials, and spoils. Ground-based work activities in tidally influenced wetlands near Buhne Slough will not occur during extreme high tide events that flood the work area. The micropile process uses a drill tip to install casings for each concrete tower foundation footing. The casing is used as a lining for the concrete foundation, which is placed after the pile has been installed. The casing is used to provide a structural element for the pile. The drill tip serves as an installation aid and provides the means through which grout is injected to produce a soil-cement mixture around the pile. Installing the foundations for all four legs of an LST will take approximately 20-24 days. The micropile equipment directs cuttings and spoils through a closed system away from the drill rig using a discharge hose. Cuttings and all drill spoils will be disposed of in a dumpster and hauled off site or placed in smaller containers and transported off site by helicopter for proper disposal.

Regardless of the method used for installing foundations, a portable washing station may be established to minimize time between the concrete pour and truck clean out. This station will include dike walls and tarping, allowing washed materials to be contained and disposed of properly. Alternatively, self-washing concrete trucks with mobile containment may be used or equipment will be washed and contained in accordance with local encroachment permits. Excess construction materials will be transported to an area service center or other appropriate facility for disposal in accordance with applicable laws.

After the foundations are installed, LSTs will be assembled at the staging area and if necessary, flown to the site in "panels." The panels will be placed on the foundations and latticed together with strips of steel. Once the first level is complete, another set of panels will be assembled and bolted on top. These panels will be latticed together, and the process will be repeated until the tower is complete. Once assembled completely, crews will install and tighten all bolts, attach insulators to the arm extensions, and prepare the towers and insulators for the conductor-stringing operation.

2.8.5.2 Installing Tubular Steel Poles

The foundations for the two TSPs will be installed using the micropile technique due to the presence of groundwater and to reduce ground disturbance.

The new TSPs will be transported to the site in sections using a flatbed truck and installed using a crane to place the TSP on the foundation base. Existing conductors then will be transferred to the new TSP using a line truck or by hand using ropes, and installed. Once the conductors have been installed, the existing wood poles at these locations will be removed and the remaining holes will be backfilled. Excess soil will be removed from the site.

2.8.5.3 Installing and Removing Wood and Light Duty Steel Poles

Wood and LDS poles will be installed and removed generally using these six basic steps:

1. Deliver new pole to pole site.
2. Auger new hole using line truck, "go-tract" (light-weight tract vehicle with drilling equipment), excavator attachment, or hand dig if the equipment cannot access the site. In developed areas, jackhammers or similar equipment may be used to break up concrete.
3. Install the new pole using a line truck, go-tract (or similar), excavator, or helicopter.

4. Move old conductors and co-located lines to the new poles using the line truck, go-tract, excavator, or by hand with ropes.
5. Pull new conductors while old conductors are removed.
6. Remove old poles by line truck, go-tract, excavator, or helicopter/crane and fill hole.

A line truck with trailer and a potential second truck (crew-cab truck and/or half-ton pickup) will be used to access the majority of the construction sites for installing and removing poles. Helicopters, go-tracts and excavators may be used in locations where line trucks cannot access a pole site. A maximum of five truck trips are anticipated for each pole site. The trips to the site are to deliver the pole, auger the hole, set the pole, and remove the old pole. Each pole site is expected to be accessed for up to one week during construction. A line truck and trailer can transport between two and three poles. During pole delivery and removal, the line truck may access two or three sites during each trip in a given day as schedule and conditions permit. Pole delivery, augering and setting may occur in one day during a single trip.

Replacement poles will be placed in holes dug with a line truck auger attachment (highway digger with 15- to 18-foot depth capacity), an excavator attachment, or by hand. No foundations will be used for new wood or LDS poles. New poles are typically located within approximately 5 to 10 feet from existing poles and in line within the existing power line alignment. A water truck may be used during augering to keep soil firm in areas of sandy soil. This pole installation technique will also be used for installing the engineered direct embedded pole.

In areas with standing water, a go-tract will excavate the pole hole and install a culvert to stabilize the hole and to allow standing water to be pumped out. The culvert will remain in place after the pole is set as described above. Pole holes will be covered until the new pole is installed. If groundwater is encountered during augering or hand digging, the water will be discharged to the surface in undeveloped areas in compliance with applicable regulations or discharged to a portable tank or other container and disposed off-site.

The existing wood poles do not have foundations and will be removed completely. The LDS poles have a flange at the base, extending approximately 2 inches from the pole. A hydraulic jack mounted on the line truck will be used to loosen old poles as needed. A vacuum truck will be used as needed to remove soil from around the pole to facilitate removal. LDS poles that have a flange at the base will either be cut off below the ground surface, leaving the flange and remaining pole in the ground, or the soil around the flange will be removed using a vacuum truck and the LDS pole along with the flange will be removed. Poles are expected to be cut into two sections for removal on the line truck with a trailer. When old poles are removed, the soil removed while augering the new pole hole will be used to backfill the old pole hole; any unused soil will be retained on site and stabilized consistent with the SWPPP.

Helicopters will perform pole installation and removal at construction sites inaccessible by over-the-road vehicles or to minimize ground disturbance and wetland impacts. Helicopters typically assist with delivering the new pole to the pole site, setting the pole, and removing the old pole top and bottom sections (two trips).

For helicopter-assisted installation and removal, workers will access the pole site on foot, by helicopter, or by ATV depending on surface conditions. Long-handled shovels will be used to dig the new pole holes and to loosen the soil around existing poles prior to removal. Poles will be cut into two sections for removal; each of the two sections will be removed in a single helicopter trip. Pole removal of the top and bottom section from the site will most likely occur on the same day. When old poles are removed, the soil removed while hand-digging the new pole hole will be used to backfill the old pole hole; any unused soil will be retained on site and stabilized consistent with the SWPPP. If groundwater is encountered during hand-digging, the water will be discharged to the surface in accordance with applicable regulations.

Wood poles, splinters, and sawdust from cutting poles will be taken to the designated collection bin. The poles and sawdust will be disposed of in accordance with state and federal law; typically, they are transported with other bin contents to a licensed Class 1 landfill or a composite-lined portion of a solid waste landfill.

2.8.5.4 Pole Modifications

Approximately 10 existing wood and LDS poles will be left in place and modified, including replacing insulators and reframing to accommodate the new conductor. This work will be accomplished using bucket trucks that will access the structures by paved roads or overland, or by helicopter.

2.8.5.5 Top Removal

Poles slated for shortening will be accessed by foot and helicopter. A chainsaw will be used to remove the top portion of the pole, which will then be flown from the area by helicopter. Visqueen plastic will be placed at the base of the pole to collect debris and sawdust. Prior to and during the shortening of the pole, water mist will be used to settle any dust generated during the chain sawing. The sawdust and splinters from the chainsaw activities will be collected, removed from the site, and disposed of with the pole top as described above.

2.8.6 Conductor Replacement

To reconductor the HB–H #1 line, PG&E will temporarily take out of service (also known as taking clearances) the 60 kV power line and specific sections of distribution lines that cross the power line or are co-located on the power line poles. As part of ongoing operation and maintenance of the transmission and distribution system, PG&E will continue to manage transmission and distribution clearances and balance the system by routing power through different lines. This normally involves turning existing switches on and off, and installing additional switches if needed, some of which may be located outside the identified project area.

Distribution switches may be located along the distribution lines that are being taken out of service or along other distribution lines that may be affected by taking a line out of service. Some switches are operated at a central location (such as a substation) or are controlled remotely. Other switches are operated manually in the field by operations personnel using a bucket truck or similar equipment. The location where switching activities will be required will depend on daily and seasonal power demand scenarios. PG&E crews will perform this work as needed to comply with safety procedures, to limit customer outages, and to manage the operational needs of the system. Turning a switch on or off generally takes only a few minutes and the crew returns to other work once the switching is completed. These distribution-switching activities take place throughout PG&E's service territory and are an integral part of PG&E's ongoing operational activities.

2.8.6.1 Reconductoring

Conductor replacement will occur in sections when seasonal restrictions, clearances, and crew scheduling permit. Some installation phases may occur concurrently along different portions of the power line. Reconductoring equipment will be staged at the pull sites.

Before reconductoring begins, any road crossings within the section of installation will be briefly closed or a rolling stop will be arranged. Guard structures on each side of the road also will be put in place on busy streets. Guard structures with netting will be used at US Highway 101. Specially-equipped bucket trucks may also be used to guard road and line crossings. Road closures that must occur on city or county roads are not expected to exceed five minutes in duration. For the US Highway 101 crossing, the California Highway Patrol and Caltrans will be contacted to organize rolling stops, as necessary. PG&E will obtain any necessary permits from the affected agencies for these activities.

The existing conductors will be moved from the old poles to the new poles during the line clearance(s) using the boom on the line truck and a line truck with a worker lift. At sites inaccessible by the line truck, the lines will be moved by hand using ropes and lines to transfer the conductors between poles.

The conductor stringing operation begins with installing rollers or sheaves. The rollers or sheaves attach to the lower end of the insulators on the new poles and LSTs. The rollers or sheaves allow the individual conductors to be pulled through each structure until the conductors are ready to be pulled up to the final tension position.

A cable will be attached between the old conductor and the new conductor on a reel attached to a line truck at a pull and tension site. From an adjacent pull and tension site, a line truck with a drum puller and an empty conductor reel will pull the old conductor onto the reel for salvage, while pulling the new conductor into place. Tension will be maintained by the line truck with the new conductor reel to prevent the line from sagging to the ground. Crews may also need to access mid-span locations to structurally reinforce splices (joints where conductor is connected) along the existing conductor to avoid conductor breakage during pulling operations.

After the conductors are pulled into place, conductor sags will be adjusted to a pre-calculated level to comply with the CPUC’s General Order 95 requirements. The minimum ground clearance will be approximately 32 feet or 29 feet at maximum operating temperature. Vertical separation distance between conductors will be approximately 10 feet, and the horizontal separation distance is approximately 9.5 feet. Where the power lines cross Highway 101, the minimum ground clearance will be approximately 43 feet, or 35 feet at maximum operating temperature, vertical spacing between conductors will be approximately 10 feet, and the horizontal spacing will be approximately 23 feet. The conductors will then be clamped to the end of each insulator as the roller or sheaves are removed. The final step of the conductor installation will be to install vibration dampers and other accessories. Once completed, any temporarily closed roads will be opened.

Transport vehicles (crew-cab truck and/or half-ton pickup) will be used to transport personnel to a pull or tension site. To haul the conductor to the site, reel trailers with reel stands will be mounted on a line truck. On the line truck, pullers will be mounted to install the conductor. The conductor will be removed from the sites on a line truck.

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

2.8.6.2 Temporary Structures

To facilitate conductor installation, two types of temporary wood poles will be installed—guard structures and snub poles. Following reconductoring activities, guard structures and snub poles will be removed, the holes will be backfilled, and the disturbed areas will be recontoured and reseeded as needed.

Guard Structures

As a safety precaution to prevent the conductor from falling to the ground should it be dropped or sag excessively during reconductoring, temporary guard structures will be installed at certain road and aboveground utility crossings before conductor pulling activities begin.

The structures typically consist of paired wood poles with cross bracing designed to catch a falling conductor; the guard structures installed adjacent to US Highway 101 will consist of three wood poles and will include netting to provide additional protection against falling or sagging conductor. It is anticipated that a combination of temporary lane closures and rolling road blocks will be required to install the nets.

These structures will be temporary direct-buried wood poles that typically extend approximately 50 feet aboveground and approximately 7 feet below ground. Guy wires may also be used for stability. An approximately 40- by 40-foot work area will be used to install the guard structures. Final design will determine exact guard structure work area locations. Guard structures will be installed away from paved roads, and will be located along roadsides in disturbed areas, causing relatively limited disturbance.

If it is not possible to install the guard structure adjacent to the side of the road, the wood pole may be installed in a large pot temporarily placed on a paved area. Additionally, in lieu of installing temporary wood poles as guard structures, bucket or line trucks may be staged at crossings to serve the same purpose.

Snub Poles

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

Snub poles are direct-buried and may be guyed for stability. A line truck will be used to auger and set the snub poles.

2.8.7 CLEANUP AND POST-CONSTRUCTION RESTORATION

All non-hazardous construction debris will be picked up and hauled away for recycling or disposal during construction. PG&E will conduct a final survey to ensure that clean-up activities have been successfully completed as required.

Existing access routes will not be re-vegetated; they will continue to be used for operations and maintenance. Temporary work areas and staging areas will be restored in coordination with landowners, including applying a native seed mix or other seed mix in areas of ground disturbance. Temporary overland access routes will be allowed to return to the natural state.

2.8.8 Construction Workforce and Equipment

Each construction crew is expected to have between two and five workers. During the construction period, typically there will be two to five crews of approximately five people each, depending on specific activities being conducted. At peak of construction, there may be as many as 10 crews during day clearances to install the conductors and to minimize the length and number of line clearances. Typically, construction will occur six days per week, (Monday through Saturday) and 10-hours per day, consistent with local noise ordinances unless safety or clearance needs dictate otherwise. During conductor installation and peaks in construction, additional crews may be brought to the project site.

Table 2.8-3: Power Line Construction Anticipated Personnel and Equipment, lists the expected equipment and personnel by construction activity. Not all equipment and personnel may be used during all portions of the activity. Table 2.8-4: Equipment Expected to be Used During Construction describes the anticipated use of the equipment.

Table 2.8-3: Power Line Construction Anticipated Personnel and Equipment

Activity	Estimated Quantity of Equipment		Estimated Days per Week of Operation	Estimated Hours per Day of Operation	Estimated Duration of Use (weeks)	Anticipated Schedule (months in use)
Survey	1	Pickup truck	5	5	5	April, May
Access Road Improvements and Reestablishment	1	Terex mower or similar equipment or rubber tracks	3	6	5	May, June
	2	Chainsaw	5	3	5	May, June
	1	D4 Dozer	2	4	5	May, June
	1	Backhoe	2	4	5	May, June
	1	Pickup truck	5	2	5	May, June
	1	Semi truck with trailer to haul Dozer, backhoe and Terex mower.	2	4	5	May, June
	1	Water truck	5	4	5	May, June
	1	Small excavator- placing temporary matting	1	4	26	May-October
Staging Area Improvements, Development, and	1	ASV mower (Terex?) or similar equipment on rubber tracks	2	4	2	May

Table 2.8-3: Power Line Construction Anticipated Personnel and Equipment

Activity	Estimated Quantity of Equipment		Estimated Days per Week of Operation	Estimated Hours per Day of Operation	Estimated Duration of Use (weeks)	Anticipated Schedule (months in use)
Operation	1	Forklift 8,000 lb	6	1	26	May to November
	1	Forklift 26,000 lb	6	1	26	May to November
	1	Pickup truck	5	2	5	May, June
	1	Semi truck with trailer to haul mower.	2	3	5	May, June
	1	Water truck	5	3	5	May, June
	1	F-650 flatbed to transport temporary fencing, generators, sanitation facilities	5	3	5	May, June
Drainage Crossings (including temporary bridges)	1	Backhoe	5	4	3	May or June
	1	pickup truck	5	2	3	May or June
Auger Pole Holes	2	Pickup truck	6	3	14	May through August
	2	Line truck with auger	6	3	14	May through August
Material Haul	2	Line truck with trailer	6	3	14	May through August
Pole Delivery	1	Tractor trailer	6	3	14	May through August
	1	Line truck with trailer	6	4	14	May through August
Pole Installation – Aerial Access (includes old pole removal)	2	Crew-cab truck – transport to walk-in access point	6	3	3	May through August
	1	Helicopter (Bell 214)	1	6	4	July, August
Pole Installation - Ground Access, per	2	Crew-cab truck	6	3	14	May through August

Table 2.8-3: Power Line Construction Anticipated Personnel and Equipment

Activity	Estimated Quantity of Equipment		Estimated Days per Week of Operation	Estimated Hours per Day of Operation	Estimated Duration of Use (weeks)	Anticipated Schedule (months in use)
crew, two crews required (includes old pole removal)	2	Aerial lift bucket truck	6	6	14	May through August
	2	Line truck with trailer	6	4	14	May through August
	1	Vacuum truck	5	6	8	May through August
TSP and LDSP Delivery	1	Tractor trailer	6	4	14	May through August
	2	Pickup trucks/crew cab	6	4	14	May through August
TSP and LDSP Installation	2	Line truck with auger	6	4	14	May through August
	3	Crew-cab pickup trucks	6	3	14	May through August
	2	Pickup truck	6	3	14	May through August
	1	Hole digger	2	4	14	May through August
	2	Aerial lift bucket trucks	6	4	14	May through August
	1	Backhoe	6	2	14	May through August
TSP Foundation Drilled Pier (1 TSP)	1	Truck or Track Drill	1	8	1	June
	1	12 ton truck crane	1	2	1	June
	1	Backhoe	1	4	1	June
	1	Dump truck	1	4	1	June
	1	Crew truck	2	4	1	June
	1	Forklift	1	2	1	June
	1	Concrete mixers	1	4	1	June
	1	Vac truck (dewatering)	1	4	1	June
	1	Trimmie pumps (dewatering)	1	4	1	June

Table 2.8-3: Power Line Construction Anticipated Personnel and Equipment

Activity	Estimated Quantity of Equipment		Estimated Days per Week of Operation	Estimated Hours per Day of Operation	Estimated Duration of Use (weeks)	Anticipated Schedule (months in use)
Tower Foundation Installation Drilled Pier (One Lattice Tower)	1	Truck or Track Drill	5	8	2	June
	1	12 ton truck crane	2	2	2	June
	1	Backhoe	5	4	2	June
	1	Dump truck	5	2	2	June
	1	Crew truck	5	2	2	June
	1	Forklift	5	2	2	June
	1	Concrete mixers	2	5	2	June
	1	Vac truck (dewatering)	2	5	2	June
	1	Trimmie pumps (dewatering)	2	5	2	June
Tower and TSP Foundation Installation Micropile (Three Lattice Towers and Two TSPs)	2	200 psi/400 cfm Ingersoll Rand Air Compressor	6	8	8	June-July
	1	Helicopter (Blackhawk)	6	3	8	June-July
	2	Rotary Beretta Drill	6	8	8	June-July
	2	Small Hydaulic Injection Pump	6	8	8	June-July
	2	Electric Jack Hammer	6	8	8	June-July
	2	Water pump (Hypro)	6	8	8	June-July
	4	Diesel powered generator	6	8	8	June-July
	2	Grout transfer pump	6	8	8	June-July
	2	Power unit	6	4	8	June-July
	4	Power hacksaw	6	4	8	June-July
Tower Installation (all four towers)	1	Boom truck/Crane	2	6	1	July
	2	Crew-cab pickup trucks	6	8	2	July
	2	Light-duty pickup truck	6	8	2	July
	1	Helicopter (Blackhawk)	4	6	1	July
Conductor Installation	3	Pickup trucks	6	4	10	July through October

Table 2.8-3: Power Line Construction Anticipated Personnel and Equipment

Activity	Estimated Quantity of Equipment		Estimated Days per Week of Operation	Estimated Hours per Day of Operation	Estimated Duration of Use (weeks)	Anticipated Schedule (months in use)
(includes old conductor removal, and guard structures)	3	Aerial lift bucket trucks	6	7	10	July through October
	1	Helicopter (MD 530F)	4	8	1	July
	1	V-Groove puller attached to line truck	3	7	10	July through October
	3	Wire reel trailers attached to line truck	3	7	10	July through October
Right-of-way Restoration and Clean-up	1	Small tractor with rippers	5	5	4	October
	1	Hydroseed truck	3	6	4	October
	1	Crew cab pickup with trailer transport small tractor	5	3	4	October
	1	Pickup truck	5	3	4	October
Sidewalk Restoration	1	Concrete Truck	5	2	2	May through July
	1	Crew foreman's pickup	5	2	2	May through July
	1	Concrete cutter	5	2	2	May through July
	1	Crew cab pickup	5	2	2	May through July

Table 2.8-4: Equipment Expected to be Used During Construction

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
Concrete cutter	Cut sidewalks/asphalt
Compressor	Operate tools
Construction digger	Install poles
Dozer	Grading
Dump truck	Remove garbage
Excavator	Place matting
Flasher board	Traffic control
Foreman pickup truck, crew-cab truck, boom truck	Transport workers, material, equipment, and supplies
Forklift	Lift materials
Generator	Portable power generation
Grout transfer pump	Drilling
Hardline puller	Install conductor
Helicopter	Carry equipment and workers
Hole digger	Excavation
Hydroseed truck	Seeding
Jackhammer	Excavate holes
Tensioner attached to line truck	Install conductor
Terex mower or similar equipment	Mowing
Tractor with rippers	Relieving compaction
Tractor trailer	Deliver poles to the site
Tremie pumps	Concrete installation
Truck-, track- or rotary drill	Installing foundations
V-Groove trailer puller attached to line truck	Install conductor
Vacuum truck	Dewatering/soil removal
Wire reel trailer	Transporting conductor
Work site protection type vehicle	Traffic control

2.8.9 CONSTRUCTION SCHEDULE

Construction is scheduled to begin in the spring of 2022 and be completed in the fall of 2022. With few exceptions, the HB – H #1 line cannot be removed from service during the winter season. Structure and pole installation, line reconductoring, and pole removal are expected to be performed over approximately six to eight months. Reconductoring and pole and tower installation activities in wetland areas will generally occur in the dry season beginning in June. Reconductoring will begin along sections of the line when new poles have been installed over an approximate 1-mile length.

The preliminary proposed schedule is presented in Table 2.8-5: Proposed Construction Schedule.

Table 2.8-5: Proposed Construction Schedule

Project Activity	Proposed Schedule
Commence work on poles located along streets within urban areas	May 2022
Foundation crew starts work on LSTs and TSPs	May-June 2022
Continue pole replacements and begin conductor replacement	June - September 2022
Cleanup	October 2022
Project completion date	December 2022

2.9 OPERATION AND MAINTENANCE

No changes to existing operation and maintenance activities are anticipated. Reconductoring of the line will reduce the potential for conductor failures. New structures will also be better able to withstand the coastal climate. Fewer failures are anticipated to result in fewer events or incidents that require emergency responses and inspections.

The existing power line is currently inspected annually, or more frequently as needed when driven by an event or incident, such as an emergency. The routine annual inspections, currently alternating between a detailed ground inspection and aerial patrol, will not change as a result of the proposed project. Equipment and methods typically used (off-road utility vehicles [e.g., 6×6 Polaris/Razor utility quad], line truck, and bucket truck) and walking to poles inaccessible by vehicle are not anticipated to change. Any existing access routes reestablished during the project will be used.

As maintenance needs arise, repairs and preventative maintenance will be completed by the PG&E power line crew (five trained employees). This is consistent with current practices and will not change as a result of the project.

2.10 ANTICIPATED PERMITS AND APPROVALS

The CPUC is the lead state agency for the project under the California Environmental Quality Act (CEQA) because a Permit to Construct (PTC) is required in accordance with the CPUC's GO 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 2.10-1: Permits and Approvals That May Be Required provides the potential permits and approvals that may be required for project construction.

Table 2.10-1: Permits and Approvals That May Be Required

Permit/Authorization	Agency	Purpose
Federal		
Clean Water Act Section 404 Nationwide Permit 12	U.S. Army Corps of Engineers (USACE)	Impacts on wetlands
Endangered Species Act Section 7 Consultation	National Marine Fisheries Service/United States Fish and Wildlife Service	Low potential for take of federally listed species
National Historic Preservation Act Section 106 Consultation (National Historic Preservation Act)	State Historic Preservation Office (consulting through the USACE)	Consultation regarding potential impacts to cultural resources
State		
GO 131-D Permit to Construct	CPUC	Overall Project Approval
Coastal Act Coastal Development Permit or Waiver	California Coastal Commission and/or Humboldt County	Work within the Coastal Zone
Fish and Game Code Section 1602 Streambed Alteration Agreement	California Department of Fish and Wildlife	Coverage for modification of a stream bed or bank
Clean Water Act Section 402 National Pollutant Discharge Elimination System—General Construction Storm Water Permit	North Coast Regional Water Quality Control Board	Stormwater discharges associated with construction activities disturbing more than one acre of land
Clean Water Act Section 401 Water Quality Certification/Waste Discharge	North Coast Regional Water Quality Control Board	Discharges into Waters of the United States and Waters of the State

Table 2.10-1: Permits and Approvals That May Be Required

Permit/Authorization	**Agency**	**Purpose**
Requirement		
Encroachment Permit	Caltrans	Conductor installation over US Highway 101
Local		
Encroachment Permit (Ministerial)	Humboldt County	Conductor installation over/along county roads
Grading Permit (Ministerial)	Humboldt County	Grading of more than 50 cubic yards in one lot
Encroachment Permit (Ministerial)	City of Eureka	Conductor installation over/along city roads

2.11 APPLICANT-PROPOSED MEASURES

PG&E has incorporated the APMs in Table 2.11-1: 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 minimize particular project impacts. These APMs and the project design in general have been carefully developed to ensure that no significant impacts will result from construction or operation of this project.

Table 2.11-1: Applicant-Proposed Measures

APM Number	**Description**
APM AE-1	***Nighttime lighting to minimize potential visual impacts of construction activity.*** In the unlikely event that nighttime construction activities are necessary, measures such as use of non-glare or hooded fixtures and directional lighting will be used to reduce spillover into areas outside the construction site and minimize the visibility of lighting from off-site locations wherever feasible.
APM AE-2	***Construction Cleanup***. Construction debris will be picked up regularly from construction areas. The appearance of disturbed land areas will be restored through implementation of re-contouring and/or re-vegetation.
APM AE-3	***Use of Galvanized Finish on LDSs, TSPs, and LSTs.*** Use of a galvanized finish that will weather to a dull, non-reflective patina on new steel poles and lattice towers will reduce potential for a new source of glare resulting from

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	introduction of project elements.
APM AE-4	***Design and operation of staging areas to minimize potential visual impacts.*** Security lighting may be installed at staging areas including helicopter sites. If nighttime security lighting is required in close proximity to sensitive locations such as existing residences, it will be directional and focused to minimize potential spillover or glare with respect to areas outside the staging area, and non-glare or hooded fixtures may be utilized.
APM AQ-1	***Minimize Fugitive Dust.*** PG&E will minimize fugitive dust during construction by implementing the following measures: • Reduce the amount of the disturbed area where possible. • Use water trucks or sprinkler systems in dry weather in sufficient quantity to prevent airborne dust from leaving the site. • Implement dust control measures as soon as possible following completion of any soil-disturbing activities. • Establish a policy that vehicle speed for all construction vehicles is not to exceed 15 miles per hour on any unpaved surface. • Water all active construction areas (including storage piles) as needed to suppress dust. Base the frequency on the type of operation and the soil and wind exposure. • Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. • Sweep adjacent public roads if visible soil material is carried out from a work site.
APM BIO-1	***Development and implementation of a Worker Environmental Awareness Program.*** A qualified biologist will conduct an environmental awareness program for all on-site construction personnel before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers shall be informed of the presence, life history, and habitat requirements of all special-status species that may be affected in the project area, and about state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. Color photos of special-status

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	species will be included, as well as a discussion of relevant APMs and specific avoidance or minimization measures for special-status species and habitats.
APM BIO-2	***General Resource Protection Measures.*** This APM consists of the following components: • ***Litter and trash management.*** All food scraps, wrappers, food containers, cans, bottles, and other trash will be removed from the site daily. • ***Parking.*** Vehicles and equipment will be parked on pavement, existing roads, developed areas, or approved construction work areas. • ***Route and speed limitations.*** Vehicles will be confined to established roadways or previously disturbed roadways and pre-approved access roads, overland routes, and construction work areas. Access routes and temporary construction work areas will be limited to the minimum necessary to achieve the project goals. Vehicular speeds will be limited to 15 miles per hour on unpaved roads. • ***Maintenance and refueling.*** All equipment will be maintained to avoid leaks of automotive fluids such as fuels, solvents, or oils. All refueling and maintenance of vehicles and other construction equipment will be restricted to designated staging areas located at least 100 feet from any down-gradient aquatic habitat, unless otherwise isolated from habitat by secondary containment. Proper spill prevention and cleanup equipment will be maintained in all refueling areas. • ***Hazardous materials spills***. Emergency spill response and cleanup kits will be readily available for immediate containment and cleanup of an accidental spill. Construction crews will be trained in safe handling of hazardous materials and cleanup responsibilities. Any spills into aquatic habitat will be reported to the CPUC, USACE, State Water Resources Control Board, and the California Coastal Commission (if within the coastal zone) within 24 hours. • ***Pets and firearms.*** No pets, hunting, open fires (such as barbecues), or firearms will be permitted at the project site. • ***Reporting and communication.*** The PG&E project biologist will be responsible for immediately reporting any capture and relocation, or inadvertent harm, entrapment, or death of a federally or state listed species under ESA or CESA, respectively to the USFWS and CDFW, respectively.

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	• ***Restore temporarily disturbed habitats***. All habitat areas for special-status species that are temporarily disturbed as a result of project activities will be restored upon completion of construction. Disturbed areas will be restored to pre-project conditions in coordination with land owners and in compliance with resource agency permit conditions. Tidal marsh areas will be allowed to passively restore or as otherwise required by resource agency permit requirements. • ***Erosion control materials.*** Only tightly woven netting or similar material will be used for all geo-synthetic erosion control materials such as coir rolls and geo-textiles. No plastic monofilament matting will be used. • ***Minimize grading and vegetation removal along access roads and construction work areas, to the extent feasible.*** PG&E will only trim, clear, or remove vegetation as necessary to establish the access routes and allow equipment use. Trees will be directionally felled away from sensitive biological resource areas, and if that is not possible, removed in sections. Damage to adjacent trees will be avoided to the extent possible. • ***Weed management.*** Vehicles and construction equipment will be cleaned of mud and dirt on site at a PG&E wash facility or otherwise approved wash-down location as needed to minimize transport of weed plant parts or seed. Vehicles will also be cleaned at the completion of the project or when off-road use for that vehicle has been completed.
APM BIO-3	***Conduct Preconstruction Survey(s) for Special-Status Species and Sensitive Biological Resource Areas.*** A qualified biologist will conduct pre-construction survey(s) in areas identified in the BRTR as having habitat for special-status species and sensitive biological resource areas, either during the appropriate phenological period for plants or within 7 days prior to construction activities for wildlife. If any special-status species is encountered during the pre-construction survey(s), the PG&E project biologist will be contacted immediately. If any special-status species are found nearby but outside the construction work area, they will not be disturbed. If recommended by the biologist, a temporary silt-fence barrier may be installed to prevent special-status species from entering the construction work area(s) during project activities.
APM BIO-4	***Identification and Marking of Sensitive Biological Resource Areas.*** Sensitive biological resources (e.g., special-status plants, wetlands) in or adjacent to construction work areas identified during the pre-construction surveys, will be clearly marked in the field and on project maps. Such areas

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	will be avoided during construction to the extent practicable.
APM BIO-5	***Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas.*** A qualified biologist will be onsite during ground-disturbing construction activities in sensitive biological resource areas identified in APM BIO-4 above unless the area has been protected by barrier fencing to protect sensitive biological resources and previously cleared by the qualified biologist. The qualified biologist will ensure implementation and compliance with all avoidance and mitigation measures and have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.
APM BIO-6	***Nesting Bird Impact Avoidance and Protection.*** If construction 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 C of the PEA and will occur within 15 days prior to the start of construction to determine nesting status by a qualified 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 construction 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 C 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 C. 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. At the discretion of the biologist, vegetation removal by hand may be allowed within nest buffers or in areas of potential nesting activity. Inactive nests may be removed in accordance with PG&E's approved avian permits. The biologist will have authority to order the cessation of nearby project activities if nesting pairs exhibit signs of disturbance.
APM BIO-7	***Special-Status Plant Impact Avoidance and Protection.*** Prior to the start of construction and in conjunction with APM-BIO 3, a qualified botanist will resurvey mapped populations of Lyngbye's sedge and flag or otherwise mark (e.g., stake, fence) all special-status plant populations documented adjacent

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	to construction work areas for avoidance as feasible. After project activities have been completed at a given worksite, all staking, fencing, or flagging will be removed. If complete avoidance of special-status plant populations is not possible, PG&E will implement the following: • PG&E will limit driving across special-status plant populations to the greatest extent feasible. Where direct disturbance to topsoil (except excavation) is unavoidable, matting and other protection measures (e.g., rig mats, timber roads, plating, or tracked vehicles) will be used to minimize soil compaction or destruction of underground plant structures. Matting and other protection measures will be approved by a qualified biologist before work begins at that location. • For any unavoidable excavation required within Lyngbye's sedge populations, the upper 6 inches of topsoil containing the plant's rhizomes will be stockpiled. PG&E will use the stockpiled topsoil to restore the area after temporary construction has been completed.
APM BIO-8	***Special-Status Amphibian and Reptile Impact Avoidance and Protection.*** During wet weather or the rainy season, all open holes, pits, and trenches will be protected to ensure that frogs, salamanders, and/or turtles do not become entrapped. Protective fencing, coverings, or ramps will be installed to either prevent wildlife from falling into excavations or to allow for escape. At the end of each work day, steep-walled holes or trenches more than six inches deep will be covered or provided with one or more escape ramps and/or fenced. Open excavations will be inspected each morning, prior to the start of construction activities, to ensure that no wildlife are trapped. Construction personnel will also check underneath vehicles and within materials to be moved (i.e., tires, tracks, pipes, etc.) for the presence of frogs, salamanders, and/or turtles when parked or placed near suitable aquatic or upland dispersal habitat. Any species found will be captured and relocated to an approved location as approved by the resource agencies, if required, and in compliance with any regulatory permits issued for the project.
APM BIO-9	***Implement General Protection Measures for Wetlands and Other Waters.*** PG&E will implement the following general measures to minimize or avoid impacts on wetlands and other waters: • Avoid wetlands and other waters to the extent feasible. • Construction activities in wetlands will generally occur during the dry

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	season (May 1 to October 15) to the extent feasible. • Ground-based construction activities in tidally influenced wetlands near Buhne Slough will not occur during extreme high tide events that would flood the construction work areas. • Where travel across seasonal wetlands is necessary, it will occur during dry conditions, when feasible, to avoid soil compaction or mixing. If travel is required during wet or moist conditions, temporary matting or other protection measure (e.g., rig mats, timber roads, plating, or tracked vehicles [preferably rubber tracked]) will be used to avoid soil compaction or mixing. Matting and other protection measures will be approved by a qualified biologist before construction work at that location begins. • Conduct all fueling of vehicles at least 100 feet from wetlands and other water bodies unless approved by a qualified biologist. • Set construction work areas back at least 50 feet from streams, creeks, or other water bodies unless approved by a qualified biologist. • Implement a Storm Water Pollution Prevention Plan (SWPPP) to minimize construction-related erosion and sediments from entering nearby waterways (see APM WQ-1).
APM BIO-10	***Restore Temporarily Impacted Wetlands and Other Waters.*** All wetlands and other waters that are temporarily disturbed as a result of project activities will be restored following completion of construction in accordance with any applicable resource agency permits.
APM BIO-11	***Compensate for Permanent Impacts on Wetlands and Other Waters in Accordance with Project Permits.*** PG&E will compensate for permanent impacts on wetlands by providing at least 1:1 mitigation for any unavoidable permanent impacts to wetlands and waters within the coastal zone and in compliance with resource agency permit requirements. Final compensation ratios for impacts to wetlands and waters throughout the project alignment will be based on site-specific information and finalized through discussions with the U.S. Army Corps of Engineers and the North Coast Regional Water Quality Control Board as part of the permitting processes for the project.
APM CUL-1	***Workers Environmental Awareness Training***. PG&E will provide environmental awareness training on archeological resources protection. This training may be administered by the principal cultural resource specialist (CRS) as a stand-alone training or included as part of the overall environmental awareness training as required by the project and will at

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	minimum include: types of cultural resources or fossils that could occur at the project site; types of soils or lithologies in which the cultural resources could be preserved; procedures that should be followed in the event of a cultural resource or human remain discovery; and penalties for disturbing cultural resources.
APN CUL-2	***Flag and Avoid Resources (Spiegelberg Homestead Archaeological Deposit).*** The archaeological deposit at the Spiegelberg Homestead is not in the project area limits (PAL), but adjacent to it. There are no roadway or land improvements proposed in this location as use of this area is limited to access to a landing zone. Additionally, no pole replacements or installations are proposed at this location. However, to ensure no inadvertent impacts occur to this resource, a qualified archaeologist will establish exclusion flagging or safety fencing around the archaeological site. If it is determined that construction equipment must utilize this area for access, no grading or blading or other form of ground disturbance will be permitted within this area, and surface impacts to the resource will be avoided by way of installation of temporary protection such as matting. Although unlikely, if it is determined that the project cannot avoid impacts within the area using the protection methods identified above, additional analysis and coordination with the CPUC will be required.
APN CUL-3	***Manage Unanticipated Cultural Resources Discoveries*** a) *Cultural Resources* If cultural resources are inadvertently discovered during site preparation or construction activities, work will stop in that area and within 100 feet of the find until a qualified PG&E cultural resource specialist (CRS)/archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the CPUC. Work may continue on other portions of the site with the CRS/archaeologist's approval. PG&E will implement the CRS/archaeologist's recommendations for treatment of discovered cultural resources. b) *Human Remains* In keeping with the provisions provided in 7050.5 CHSC and Public Resource Code 5097.98, in the unlikely event that human remains or suspected human remains are encountered during any project-related activity, PG&E will: 1. Stop all work within 100 feet; 2. Immediately contact the CRS, who will then notify the county

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	coroner and CPUC; 3. Secure the location, but do not touch or remove remains and associated artifacts; 4. Do not remove associated spoils or pick through them; 5. Record the location and keep notes of all calls and events; and 6. Treat the find as confidential and do not publicly disclose the location. If the coroner determines that the remains are Native American, California Health and Safety Code 7050.5 and PRC Section 5097.98 require that the PG&E CRS contact the NAHC within 24 hours. The NAHC, as required by PRC Section 5097.98, will determine and notify the Most Likely Descendant.
APM CUL-4	***Undiscovered Potential Tribal Cultural Resources*** The following procedure shall be employed (after stopping work and following the procedure for determining eligibility in APM CUL-3) 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: 1. The CRS shall 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. 2. The CRS shall 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 implement one of the example mitigation measures listed in PRC section 21084.3(b), or other feasible mitigation.

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
APM PALEO-1	***Unanticipated Potential Paleontological Resources.*** If significant paleontological resources are discovered during construction activities, the following procedures will be followed: 1. Stop work immediately within 100 feet. 2. Contact the designated project inspector and PG&E CRS immediately; 3. Protect the site from further impacts, including looting, erosion or other human or natural damage; 4. The PG&E CRS in tandem with CPUC will arrange for a qualified paleontologist to evaluate the discovery. The paleontologist will be responsible for developing the recovery strategy in tandem with PG&E and will lead the recovery effort, which will include establishing recovery standards, preparing specimens for identification and preservation, documentation and reporting, and securing a curation agreement from the approved agency; and, 5. Work may not resume within 100 feet of the find until approval by the paleontologist and PG&E CRS.
APM PALEO-2	***Worker's Environmental Awareness Training.*** Moderate and potentially high sensitivity formations are identified within the PAL; therefore, PG&E will provide environmental awareness training on paleontological resources protection. This training may be administered as a stand- alone training or included as part of the overall environmental awareness training as required by the project. The training will include, at minimum, the following: 1. The types of fossils that could occur at the project site. 2. The types of lithologies in which the fossils could be preserved. 3. The procedures that should be taken in the event of a fossil discovery. 4. Penalties for disturbing paleontological resources.
APM GEO-1	***Minimization of Construction in Soft or Loose Soils.*** Where soft or loose soils are encountered during project construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, these measures may include excavating soft or loose soils and replacing them with engineered backfill materials, or installing matting in temporary work areas.
APM GEO-2	***Reduction of Slope Instability during Construction.*** Existing natural or temporarily constructed slopes affected by construction or operations will be evaluated for stability. Grading plans will be designed to limit the potential for slope instability and minimize the potential for erosion.

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
APM GHG-1	***Minimize GHG Emissions.*** • Maintain construction equipment in proper working conditions in accordance with PG&E standards. • Minimize unnecessary construction vehicle idling time. The 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. • 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 of 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program. • Minimize welding and cutting by using compression of mechanical applications where practical and within standards. • Encourage the recycling of construction waste where feasible.
APM HAZ-1	***Hazardous-Substance Control and Emergency Response.*** PG&E will implement its hazardous substance control and emergency response procedures to ensure the safety of the public and site workers during construction. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of project construction through operation. They address worker training appropriate to the site worker’s role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on site. If necessary to store chemicals on site, they will be managed in accordance with all applicable regulations. Material safety data sheets will be maintained and kept available on site, as applicable. No known soil contamination was identified within the project site. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are unearthed during site grading or excavation activities, the excavated soil will be tested, and if contaminated above hazardous waste levels, will be contained and disposed of at a licensed waste

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. All hazardous materials and hazardous wastes will be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following: • Proper disposal of potentially contaminated soils. • Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources. • Emergency response and reporting procedures to address hazardous material spills. • Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work will be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit. PG&E will complete a standard Emergency Action Plan Form as part of project tailboard meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailboard information.
APM HAZ-2	***Worker Environmental Awareness Program (WEAP) for Health, Safety, and Environment.*** The WEAP will include the following components related to hazards and hazardous materials: • PG&E health, safety, and environmental expectations and management structure. • Applicable regulations. • Summary of the hazardous substances and materials that may be handled and/or to which workers may be exposed. • Summary of the primary workplace hazards to which workers may be exposed. • Overview of the measures identified in APM HAZ-1. • Overview of the controls identified in the Stormwater Pollution Prevention Plan under APM HYDRO-1.

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	This measure will be coordinated with worker training required under APM BIO-1 and APM WQ-2.
APM HAZ-3	***Fire Risk Management.*** PG&E will follow its standard fire risk management procedures, including safe work practices, work permit programs, training, and fire response. Project personnel will be directed to park away from dry vegetation. During fire season, all motorized equipment driving off paved or maintained gravel/dirt roads will have federal- or state-approved spark arrestors. All off-road vehicles will be equipped with a shovel and a backpack pump filled with water and all fuel trucks will carry a large fire extinguisher with a minimum rating of 40 B:C
APM WQ-1	***Development and Implementation of a SWPPP.*** Following project approval, PG&E will prepare and implement a SWPPP to minimize construction impacts on surface water and groundwater quality. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (e.g., surface topography, etc.) The SWPPP will include procedures and standards to stabilize graded areas, reduce erosion, avoid release of hazardous materials and sediment to surface waters, and manage dewatering effluents. The SWPPP will identify BMPs and erosion and sediment control measures, such as straw wattles, water bars, covers, silt fences, storm drain inlet protection, mud trackout controls, and sensitive area access restrictions (e.g., flagging) that will be installed before the onset of winter rains or anticipated storm events to minimize impacts on surface water and groundwater. Mulching, seeding, or other suitable stabilization measures will be used to protect exposed areas during construction activities, as necessary. Identified erosion and control measures will be installed prior to the start of construction activities and will be inspected and improved as needed as required by the Construction General Permit and stated in the SWPPP. The SWPPP will specify that temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry standard stockpile management techniques. Where construction activities occur near a surface water body or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner that minimizes the risk of sediment transport to the drainage. The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary.

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	A copy of the SWPPP will be provided to the CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the Construction General Permit.
APM WQ-2	***Worker Environmental Awareness Training (WEAP) Development and Implementation.*** Worker environmental awareness training will communicate environmental issues and appropriate work practices specific to the project. The WEAP will include applicable portions of the SWPPP, including spill prevention and response measures, groundwater handling measures, and proper BMP implementation. The training will emphasize safe handling of hazardous materials, site-specific physical conditions to improve hazard prevention (e.g., identification of flow paths to the nearest water bodies), and a review of all site-specific water quality requirements.
APM NOI-1	***Employ Noise-Reducing Construction Practices during Temporary Construction Activities.*** PG&E will employ standard noise-reducing construction practices such as the following: • Construction equipment will use noise-reduction devices that are no less effective than those originally installed by the manufacturer. • Locate stationary equipment as far as practical from noise-sensitive receptors. • Limit unnecessary engine idling. • Limit all construction activity near sensitive receptors to daytime hours unless required for safety or to comply with line clearance requirements.
APM NOI-2	***Notify Residents of Nighttime Construction.*** Should nighttime project construction be necessary because of planned clearance restrictions, residents within 300 feet of the construction site(s) will be notified at least 7 days in advance by mail, personal visit, door hanger, or e-mail and informed of the expected work schedule.
APM NOI-3	***Notify Sensitive Receptors of Helicopter Use.*** Sensitive receptors within 300 feet of areas where helicopters will be used for construction will be notified by mail, personal visit, door hanger, or e-mail at least 7 days prior to beginning helicopter activities. Notification will also include posting signs in appropriate locations with a contact number to call with questions and concerns.
APM REC-01	***Coordination and Signage.*** PG&E will coordinate with the operators of the Redwood Fields Ballpark, Redwood Acres Fairgrounds, and McKay Community Forest during project construction activities to minimize any

Table 2.11-1: Applicant-Proposed Measures

APM Number	Description
	potential construction impacts from the project. Signage notifying of construction activities will be posted at these recreational facilities at least one week in advance of construction.
APM TT-1	***Temporary Traffic Controls.*** PG&E will obtain necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop road and lane closures or width reduction or traffic diversion plans as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best management practices and local jurisdictional encroachment permit requirements, which may include traffic controls such as signs, cones, and flaggers to minimize impacts on traffic and transportation in the project area. PG&E will coordinate with the Eureka Transit Service regarding the schedule and scope of construction activities that could impact bus routes crossed by the project alignment and will coordinate temporary relocation of bus stops if necessary.
APM TT-2	***Air Traffic Control.*** PG&E will implement the following protocols related to helicopter use: • PG&E will comply with all applicable FAA regulations regarding air traffic; • PG&E will prepare a Helicopter Use Plan; • Helicopter operators will coordinate all project helicopter operations with local airports before and during project construction; and • PG&E will comply with FAA requirements for helicopter activities in residential areas that will reduce safety risks, and if necessary coordinate with residents that may need to temporarily evacuate their properties
APM TT-3	***Coordinate Road Closures with Emergency Service Providers and School Districts.*** At least 24 hours prior to implementing any road or lane closure, PG&E will coordinate with applicable emergency service providers and school districts in the project vicinity. PG&E will provide information regarding the road or lanes to be closed, the anticipated date, time, and duration of closures, and a contact telephone number.

3.0 ENVIRONMENTAL ASSESSMENT SUMMARY

INTRODUCTION

The following sections (3.1 through 3.18) evaluate potential environmental impacts that may result from construction of PG&E's Humboldt Bay-Humboldt 60 kV Reconductoring 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 replace the existing poles and conductor, 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

The following subsections describe the regulatory background related to the project area as well as the methodology used to estimate aesthetic impacts.

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 there are no Designated Scenic Highways in the project area. The project crosses Highway 101, which is an Eligible State Scenic Highway.

California Coastal Act

Under the California Coastal Act of 1976 (CCA), the California Coastal Commission (CCC), in partnership with coastal cities and counties, plans and regulates "development" within the coastal zone. (See Section 3.10 Land Use and Planning and Section 3.3 Biology for more information about the CCA.) The CCA has various policies related to the protection of coastal visual resources including:

> *The scenic and visual qualities of coastal areas will be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with surrounding areas, and where feasible to restore and enhance visual quality in visually degraded areas.* (CCA Section 30251)

The CCC delegates some implementation authority to local permitting agencies (such as cities and counties) when the CCC has certified a Local Coastal Program (LCP) in a particular area. As detailed in Section 3.10.2.1 of the Land Use and Planning Section, portions of the project are located on lands where the CCC retains original permit jurisdiction. In addition, portions of the project are located within the Humboldt Bay Area Plan Area of the Humboldt County LCP promulgated by Humboldt 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 is located within Humboldt County and also passes through areas in the City of Eureka. This section reviews policies and regulations of these jurisdictions as they relate to visual resources in the project area.

Humboldt County General Plan

The Humboldt County Planning Commission recently approved an updated General Plan (Humboldt County 2017). Chapter 10 Conservation and Open Space Element of the Updated Humboldt County General Plan includes a section on scenic resources.

Chapter 10: Conservation and Open Space

Section 10.7 of the Conservation and Open Space Element addresses scenic resources, noting:

> "*Scenic beauty is perhaps the most notable characteristic of Humboldt County for visitors and one of the most appreciated attributes among residents. Forested hillsides, working agricultural land, river corridors, and the coast provide a range of stunning scenic areas.*" Scenic roads are addressed in this element through reference to the County's 1984 Framework Plan and Scenic Highway Element. Section 10.7.2 of the General Plan notes, "*Although no highways in the county are 'officially designated' as California State Scenic Highways, several state highways could be eligible for official designation, including Route 101 for its entire length in Humboldt County.*" The General Plan includes a goal from the 1984 document that calls for establishing a system of local scenic routes and conserving scenic views observable from these routes, although such scenic routes were never formally designated.

Route 101, an eligible state scenic highway, is the only roadway listed in Section 10.7 of the General Plan that is crossed by or within 200 feet of the project. While the General Plan supports establishing a system of local scenic routes in the County, no formal local scenic route system has been designated, and accordingly, there are no designated County scenic roadways in the project area.

<u>City of Eureka 2040 General Plan</u>

The recently adopted City of Eureka General Plan (City of Eureka 2018) contains the following goals and policies regarding visual resources in Section 5, Recreational and Cultural Resources.

Visual Resources Goal NR-4*: Preservation of significant visual resources that serve as scenic amenities and contribute to Eureka's character.*

> *NR-4.1 View Corridors. Preserve view corridors on public streets that lead to prominent visual resources, such as Humboldt Bay, the waterfront, landmark buildings, gulches and greenways, and surrounding agricultural and timberlands.*

3.1.2.2 Methodology

The visual analysis is based on review of technical data including proposed project maps and drawings provided by PG&E, aerial and ground level photographs of the proposed project area, local planning documents, and computer-generated visual simulations. Field observations and photography were conducted in June 2018 to document existing visual conditions in the proposed 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). Six 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 as 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 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 5 feet as the assumed eye level. Computer “wireframe” perspective plots were overlaid on the simulation photographs to verify scale and viewpoint location. Digital visual simulation images were then produced based on computer renderings of the three-dimensional model combined with the selected digital site photographs. The simulations are presented in Figures 3.1-3 through 3.1-8; 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.

This visual assessment employs methods based, in part, on those adopted by the U.S. Department of Transportation Federal Highway Administration (FHWA), and 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.

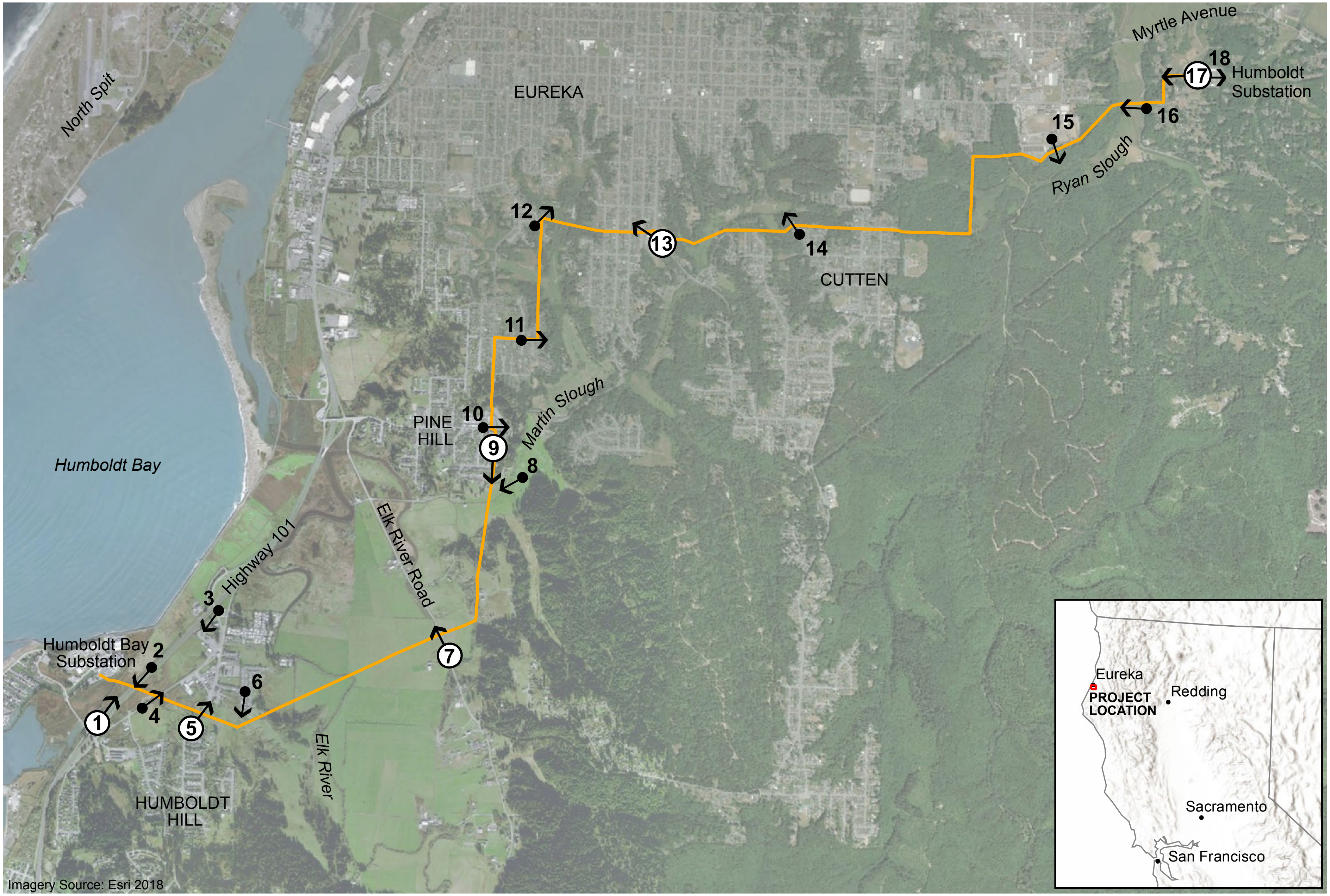
3.1.3 Environmental Setting

As detailed in Chapter 2.0, Project Description, the proposed project includes replacing existing overhead conductor and structures along approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 miles of the adjacent Humboldt Bay-Eureka 60 kV Power Line (HB-E line) immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 Power Line (HB-H #1 line).

3.1.3.1 Regional and Local Landscape Setting

Figure 3.1-1: Photographic View Location shows the project location within a regional and local landscape context. Situated in central Humboldt County, the project is near Humboldt Bay, located along California’s north coastline. The project route originates just west of Highway 101, at Humboldt Bay Substation, adjacent to the Humboldt Bay Generating Station (HBGS). Heavily traveled Highway 101 is a major transportation corridor that connects the region to San Francisco, 250 miles south, and to points north in Oregon. Part of the project is within the City of Eureka, Humboldt County’s largest urban center.

Landforms within Humboldt County are varied and include gently sloping terrain, valleys, steep hillsides, ridgelines and mountains, as well as the relatively flat marine terrace surrounding Humboldt Bay that forms an intermittent coastal plain. Surrounding mountain ranges are dominated by vegetation characteristic of the northern California coast forest ecoregion such as Douglas-fir (*Pseudotsuga menziesii*), bigleaf maple (*Acer macrophyllum*), and Sitka spruce (*Picea sitchensis*), with pockets of redwood forest in valleys where some of the world’s largest trees are found.



0 0.5 1 mile

Project Route

2 Photograph viewpoint location and view direction

1 Simulation viewpoint location and view direction

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Figure 3.1-1
Photograph Viewpoint Locations
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

1. Highway 101 northbound looking north *

2. Highway 101 southbound looking southwest

Refer to Figure 3.1-1 for photograph viewpoint locations

* Simulation Viewpoint

Figure 3.1-2a

Photographs of Project Route and Vicinity

PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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3. Vista Point and Historical Marker near Highway 101 looking southwest

4. South Broadway Street looking northeast

Refer to Figure 3.1-1 for photograph viewpoint locations

Figure 3.1-2b
Photographs of Project Route and Vicinity
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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5. Humboldt Hill Road looking northeast *

6. Sunshine Way in Seaview Mobile Estates looking south

Refer to Figure 3.1-1 for photograph viewpoint locations

* Simulation Viewpoint

Figure 3.1-2c
Photographs of Project Route and Vicinity
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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7. Elk River Road looking north *

8. Eureka Municipal Golf Course looking west

Refer to Figure 3.1-1 for photograph viewpoint locations

* Simulation Viewpoint

Figure 3.1-2d
Photographs of Project Route and Vicinity
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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9. Gatliff Avenue near Ryan Court looking south *

10. Herrick Avenue near Pinecrest Court looking east

Refer to Figure 3.1-1 for photograph viewpoint locations

* Simulation viewpoint

Figure 3.1-2e

Photographs of Project Route and Vicinity

PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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11. Higgins Street near Allen Court looking east

12. Bacchetti Court looking northeast

Refer to Figure 3.1-1 for photograph viewpoint locations

Figure 3.1-2f
Photographs of Project Route and Vicinity
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

13. Campton Road near Grant School looking northwest *

14. Roth Court looking northwest

Refer to Figure 3.1-1 for photograph viewpoint locations

* Simulation viewpoint

Figure 3.1-2g
Photographs of Project Route and Vicinity
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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15. Redwood Acres Fairgrounds looking south

16. Mitchell Road looking west across Ryan Slough

Refer to Figure 3.1-1 for photograph viewpoint locations

Figure 3.1-2h
Photographs of Project Route and Vicinity
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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17. Mitchell Heights Drive near Humboldt Substation looking west *

18. Mitchell Heights Drive looking east

Refer to Figure 3.1-1 for photograph viewpoint locations

* Simulation viewpoint

Figure 3.1-2i

Photographs of Project Route and Vicinity

PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

VISUAL SIMULATION FIGURES 3.1-3A TO 3.1-8B

Existing View from Highway 101 looking north (VP 1)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-3a

Existing View from Highway 101

PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Visual Simulation of Proposed Project (VP 1)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-3b
Visual Simulation from Highway 101
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Existing View from Humboldt Hill Road looking north (VP 5)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-4a
Existing View from Humboldt Hill Road
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Visual Simulation of Proposed Project (VP 5)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-4b
Visual Simulation from Humboldt Hill Road
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Existing View from Elk River Road looking north (VP 7)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-5a

Existing View from Elk River Road

PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Visual Simulation of Proposed Project (VP 7)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-5b
Visual Simulation from Elk River Road
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Existing View from Gatliff Avenue near Ryan Court looking south (VP 9)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-6a
Existing View from Gatliff Avenue
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Visual Simulation of Proposed Project (VP 9)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-6b
Visual Simulation from Gatliff Avenue
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Existing View from Campton Road near Grant School looking northwest (VP 13)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-7a
Existing View from Campton Road
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Visual Simulation of Proposed Project (VP 13)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-7b
Visual Simulation from Campton Road
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Existing View from Mitchell Heights Drive near Humboldt Substation looking west (VP 17)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-8a
Existing View from Mitchell Heights Drive
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Visual Simulation of Proposed Project (VP 17)

Refer to Figure 3.1-1 for photograph viewpoint location

Figure 3.1-8b
Visual Simulation from Mitchell Heights Drive
PG&E Humboldt Bay-Humboldt #1 60 kV Reconductor Project

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Low coastal scrub and grasses dominate the vegetation pattern on flatter marine terraces around the bay, with wetlands found throughout the bay margins, particularly around creeks. Fog and overcast conditions, typical of this coastal-marine setting, influence the region’s visual character. During periods of foggy, overcast weather, the general level of visibility and discernible detail is diminished, particularly with respect to distant landscape features.

The area’s coastal and forested landscape setting fosters a variety of tourist and recreational activity. Public park facilities along the coast and inland forests provide opportunities for activities including sport fishing, bird watching, hiking, boating, camping, and off-road vehicle use. At both ends of the bay, approximately 2,200 acres of land lie within the Humboldt Bay National Wildlife Refuge. Surrounding Humboldt Bay, a mixture of land use includes open space, residential, commercial, and industrial development.

Approximately 4,500 feet of the project alignment, including 11 replacement structures, cross a portion of the McKay Community Forest. Purchased from Green Diamond Resource Company in 2014, the 1,000-acre McKay Community Forest is not currently open to the public because access points and trails have not yet been completed, although it is anticipated that they may be open at the time of project construction. The planned trail system through the McKay Community Forest includes trail access in proximity to the project alignment near Redwood Acres Fairgrounds. One of the planned trails within the Community Forest Trail System crosses the project alignment approximately 0.5 miles southwest of the fairgrounds.

3.1.3.2 Project Viewshed

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 Proponent’s Environmental Assessment (PEA) is the foreground viewshed zone, where visual details are most apparent, particularly those areas within 0.25 mile of the power line.

3.1.3.3 Representative Views

This section describes the existing visual character found in the project area. Figure 3.1-2 presents a set of 18 photographs showing existing representative visual conditions and public views within the area. The viewpoint location and view direction is noted in a caption below each photograph contained in Figure 3.1-2. Figure 3.1-1 shows mapped locations of the photograph viewpoints using viewpoint (VP) numbers that correspond to the photograph numbers. Photographs 1 through 10 and 15 through 18 show representative views of the project taken from locations within the coastal zone (refer to Section 3.1.2.1). As noted below, six of the representative photographs, including five in the coastal zone, are KOP views selected for visual simulation. Table 3.1-2 provides a summary of the six simulation views, and Section 3.1.4 includes discussion and evaluation of project-related visual change and potential impact.

Beginning at Humboldt Bay Substation, the project route extends northeast to Humboldt Substation, passing through the City of Eureka and unincorporated communities of Pine Hill, Cutten, and Humboldt Hill. Gently- to steeply-sloping topography and flat valleys supporting a variety of land uses including agriculture, timberlands, recreational, residential, industrial, and commercial uses characterize the immediate project area. The following description of representative photographs documents that existing utility structures such as substations, lattice steel towers, wood and steel power poles, and overhead conductors are among the established landscape features seen within the project's visual setting.

Photograph 1, taken from the heavily traveled Highway 101 corridor, is the view of a northbound motorist, showing the HBGS facility adjacent to Humboldt Bay Substation, which is the project's western terminus. The recently rebuilt power plant is prominent on the left, and a variety of utility structures including wood poles, lattice towers, and overhead conductors of several power lines, including the project power line, are also visible along both sides of the roadway in this KOP view. These structures are also seen by motorists traveling in the opposite direction, as shown in **Photograph 2,** taken from southbound Highway 101, as well as from a vista point and historical marker adjacent to Highway 101, approximately 0.5 miles northeast of the project, the substation, and the HBGS facility (**Photograph 3**).

Photographs 4 and **5** show the existing project power line with two other parallel utility lines, where it crosses South Broadway Street and Humboldt Hill Road respectively, and passes near residences in the unincorporated community of Humboldt Hill. **Photograph 5** is from a KOP representing close-range residential views, as well as a motorist view along Humboldt Hill Road that provides access to the Humboldt Hill community from Highway 101. **Photograph 6** is a view looking south from Sunshine Way, a residential street in Seaview Mobile Estates. In this view, a lattice tower and multiple wood poles are seen beyond the residences against the forested backdrop.

Photograph 7 is a KOP view taken from Elk River Road near the roadway crossing, showing the line traversing a wetland area and agricultural lands. This photograph is typical of the area near the river, where views are generally open and unobstructed and other nearby utility lines are also visible. After crossing Elk River Road, the route turns northward passing within 500 feet of Eureka Municipal Golf Course and into the Pine Hill residential neighborhood in unincorporated Humboldt County. **Photograph 8** is a view from the southern portion of the golf course, showing open turf in the foreground with the coastal plain in the distance, and an existing wood project pole visible on the hill, partially screened by trees on the right.

Photographs 9 through **12** are views from the Pine Hill and Rosewood residential areas of Eureka. In these areas, residential development is predominantly comprised of one- and two-story houses interspersed with swaths of undeveloped wooded open space. The existing project power line is visible from several residential streets. **Photograph 9** is a KOP view representing the Pine Hill residential area. As shown in **Photographs 10** through **12**, the existing power line is typically seen in close proximity to residences and adjacent to wood poles of other nearby utility lines as well as overhead street lights.

In some cases, the project alignment passes behind residences in these neighborhoods. Near Bacchetti Court (Photograph 12), the project route turns east, crossing a wooded ravine before following Oak Street. Where Oak Street intersects Campton Road, the project power line passes Grant Elementary School. **Photograph 13** is a KOP view representing this residential area near the school campus. Views from the school toward the project line are generally screened by existing structures and vegetation.

The existing project power line crosses Martin Slough and passes within 750 feet of Sequoia Park. The dense stands of trees that screen views toward the line from Sequoia Park are visible in **Photograph 14**, which is taken from Roth Court, a residential street to the south of the park. The project alignment crosses the unincorporated community of Cutten and passes within 250 feet of Redwood Fields, a county sports center. In the area north of Redwood Fields, the project power line is screened from view by tall trees.

The project travels northeast along the edge of Ryan Slough and near the Redwood Acres Fairground. Taken from the southern portion of the fairground, **Photograph 15**, shows a fenced corral and other fairground structures in the foreground, and an existing pole is visible against a backdrop of conifers near the center of the view. Surrounding vegetation partially screens views from the fairground area. The forested area adjacent to the fairground is part of McKay Community Forest, and a planned recreation trail may pass the project at this location in the future. The line crosses Ryan Slough, a relatively flat wetland area. **Photograph 16**, taken from Mitchell Road, shows an open, unobstructed view toward the existing project power line in this area. Although visible, the medium brown color of the wood poles tend to blend in with the forested backdrop, which is part of McKay Community Forest.

After Crossing Ryan Slough, the project alignment follows Main Street, turning east on Mitchell Heights Drive, and ending at Humboldt Substation. **Photographs 17** and **18** show two views from Mitchell Heights Drive near the substation, respectively looking west and east. These photographs demonstrate that from this area structures and overhead conductor of other utility lines are also visible. **Photograph 17** is a KOP view that represents this residential area located south of Myrtle Avenue in the uplands east of Eureka and the Ryan Slough.

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 viewer groups within the project viewshed primarily include motorists on area freeways and major arterial roadways, and to a lesser extent, nearby residents and recreational users of project area open space.

Motorists, the largest viewer group, include people traveling on Highway 101 and local roadways, including Elk River Road and Mitchell Road as well as smaller residential streets. Traffic speed and volume varies on these roads, ranging from heavily traveled, four-lane

Highway 101 to narrower residential streets with less traffic and slower travel speeds. Motorists include both local and regional travelers who are familiar with the visual setting, as well as travelers using the roads less regularly. Affected views are generally brief in duration, typically lasting less than a minute. Sensitivity of this viewer group is considered low to moderate.

The second viewer group is nearby residents in the vicinity. While portions of the project route lie in agricultural land, forests and wetlands, the project power line also passes numerous residences. Residential views tend to be long in duration, and the sensitivity of this viewer group is considered moderate to high.

The third group includes a limited number of recreational users. The project power line crosses the McKay Community Forest and some planned recreation trails. Hikers may have close-range views of the project power line from limited locations at future trail crossings. In addition, the project line passes within 500 feet of the Eureka Municipal Golf Course and approximately 250 feet north of Redwood Fields, a local sports facility. Users of these facilities will continue to have limited views of the project power line. Recreational views tend to be brief or moderate 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 Aesthetics (AE)-1**: **Nighttime lighting to minimize potential visual impacts of construction activity.*** In the unlikely event that nighttime construction activities are necessary, measures such as use of non-glare or hooded fixtures and directional lighting will be used to reduce spillover into areas outside the construction site and minimize the visibility of lighting from off-site locations wherever feasible.
>
> ***APM AE-2: Construction Cleanup***. Construction debris will be picked up regularly from construction areas. The appearance of disturbed land areas will be restored through implementation of re-contouring and/or re-vegetation.
>
> ***APM AE-3**: **Use of Galvanized Finish on LDSs, TSPs, and LSTs.*** Use of a galvanized finish that will weather to a dull, non-reflective patina on new steel poles and lattice

towers will reduce potential for a new source of glare resulting from introduction of project elements.

APM AE-4**: **Design and operation of staging areas to minimize potential visual impacts. Security lighting may be installed at staging areas including helicopter sites. If nighttime security lighting is required in close proximity to sensitive locations such as existing residences, it will be directional and focused to minimize potential spillover or glare with respect to areas outside the staging area, and non-glare or hooded fixtures may be utilized.

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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. The project will reduce the frequency of outages and necessary maintenance and reinforce address an existing curtailment issue to reinforce the existing power line system.
While the new conductors will be larger in diameter, their appearance will be generally comparable to that of existing conductors under typical viewing conditions in the area. No new permanent lighting is proposed as part of the project.

As part of the project, approximately 0.6 mile of the adjacent HB-E line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the HB-H #1 line and modifications will be made to the Humboldt Bay-Humboldt #2 60 kV Power Line (HB-H #2 line). On the HB-E line, approximately seven wood poles will be removed; three wood poles shortened, and replacement conductors will be transferred to the new LSTs shared with the HB-H #1 line. On the HB-H #2 line, one wood pole also will be removed, and conductors transferred to a new TSP shared with the HB-E line.

Temporary work areas required for staging, at towers and poles, at pull sites, and for helicopter landing zones may include site preparation, such as grading, or some vegetation removal as necessary to create accessible, stable, and safe work areas. Construction vehicles are generally anticipated to access work areas on existing access routes. In some locations, helicopters will be used in conjunction with construction ground crews. Temporary work areas and staging areas will be restored in coordination with landowners, and in compliance with applicable resource agency permits, to re-establish pre-project conditions. Temporary overland access routes will be allowed to return to the natural state. Construction of the project is expected to occur over a period of approximately six-eight months. Construction activities will generally take place during daylight hours unless night-time work is necessitated by clearances or safety requirements.

Project construction will require removal of approximately 20 trees, ranging in diameter between approximately 4 inches and 16 inches diameter at breast height. Some tree trimming will also be required. The tree removal and tree trimming will generally occur at locations that are not particularly visible to the public.

No changes to line operations or maintenance would occur as a result of this project; thus, no operation-related impacts to aesthetic conditions will occur. Accordingly, the impact analysis is focused only on construction activities that are required to replace existing conductors and structures, including the establishment of associated required access and work areas, as outlined in Chapter 2.0, Project Description. The impact analysis also addresses the impact of any permanent visual changes from the replaced conductors and structures.

Visual Change

A set of visual simulations, presented on Figures 3.1-3a through 3.1-8b, documents the visual change that would occur as a result of the proposed project, and provides the basis for evaluating potential visual effects of the project on key public views. Table 3.1-2 presents an overview of the simulation views, including viewpoint number and location, visible project change that would be seen from each viewpoint, and approximate viewing distance to the nearest proposed project component. Viewpoint numbers listed in the summary table match the viewpoint numbers depicted on Figure 3.1-1 and included on each visual simulation figure. As outlined in Table 3.1-2 and detailed below, the visual change associated with proposed project modifications will not substantially alter existing visual conditions in the project area.

Table 3.1-2: Summary of Simulation Views

Viewpoint # (See Figure 3.1-1 for location)	Location	Visible Project Change	Approximate Distance to Nearest Site Element	PEA Figure Number
1	Highway 101 (Coastal Zone)	• New lattice tower. • Six wood poles are shortened to leave only existing distribution lines. • New conductors replace existing conductors.	1,100 feet	3.1-3
5	Humboldt Hill Road (Coastal Zone)	• New lattice tower replaces two existing wood poles that are removed. • Two existing wood poles located nearby are permanently removed (to the left, outside view shown in simulation photograph). • New conductors replace existing conductors.	500 feet	3.1-4
7	Elk River Road (Coastal Zone)	• A same-height wood pole replaces an existing wood pole. • New insulators replace existing insulators on one existing steel pole. • New conductors replace existing conductors.	300 feet	3.1-5
9	Gatliff Avenue near Ryan Court (Coastal Zone)	• Two, somewhat taller wood poles replace two existing wood poles. • New conductors replace existing conductors.	200 feet	3.1-6

Table 3.1-2: Summary of Simulation Views

Viewpoint # (See Figure 3.1-1 for location)	Location	Visible Project Change	Approximate Distance to Nearest Site Element	PEA Figure Number
13	Campton Road near Grant School	• Three taller wood poles replace three existing wood poles. • Nearest wood pole is relocated away from corner. • New conductors replace existing conductors.	300 feet	3.1-7
17	Mitchell Heights Drive near Humboldt Substation (Coastal Zone)	• Four taller wood poles and one new pole replace four existing wood poles. • New conductors replace existing conductors.	175 feet	3.1-8

Figure 3.1-3a shows an existing view from Viewpoint 1 along Highway 101 looking north, representing a typical view for motorists traveling north on Highway 101 towards Eureka and points north and is within the coastal zone. This open view includes coastal wetlands, partial bay views and more distant trees and structures near the city of Eureka. The HBGS, including prominent stacks, tanks, and generator building, is partially seen on the far left against the sky. Wood poles supporting the project and adjacent power lines are visible at the left, center, and right side of this view with both a landscape and sky backdrop. Taller lattice steel towers supporting an adjacent power line are noticeable on the left and right side of the roadway, as well as a taller antenna tower seen against the sky in the distance on the right. Light poles adjacent to the highway and advertising billboards are also seen in this view.

Figure 3.1-3b visual simulation shows a new lattice tower near the center of this view, and approximately 100 feet west of Highway 101. Near this new tower, the top portions of two existing wood poles have been removed and new conductors have been relocated to the new tower. The tops of four additional wood power poles, two on the left and two on the far right, are also removed, leaving the existing distribution lines. The replacement conductors, with longer spans than the existing conductors, are supported by structures that are further to the left and right and not seen in this view. The new lattice tower is a noticeable new element in the landscape that is comparable to existing lattice towers seen in this view. When compared to the existing view, the shortened wood poles are less visible against the skyline. In addition, when seen from a vehicle traveling at typical highway travel speed, the affected view duration will be brief, lasting less than a minute. In light of the visibility of existing utility structures including the HBGS facility and given the brief duration of the view, the visual effect could be slightly noticeable but will not substantially affect the existing character of the landscape setting seen from this regional highway.

Figure 3.1-4a shows the view from Viewpoint 5 along Humboldt Hill Road in the unincorporated residential community south of the project route. This photograph represents close-range residential views as well as a motorist view from this local road that provides access from Highway 101 to the Humboldt Hill community to the south. One- and two-story houses, seen in the foreground and background are located adjacent to the approximately 400-foot-wide wetland area crossed by the project alignment and adjacent power lines. On the far left, a lattice steel tower of an adjacent power line is seen silhouetted against the sky beyond a residence, and trees surrounding a second residence are seen just to the left of the road. Beyond a house on the far right, two wood project poles and a third wood pole supporting an adjacent power line are also seen silhouetted against the sky. Two additional wood project poles are just beyond the left side of the view shown in Figure 3.1-4a. Although this viewpoint is within the coastal zone, distant views of coastal landscape features to the north or west are not available from this location.

The Figure 3.1-4b visual simulation shows a new lattice tower on the right near the roadside that has replaced two existing wood poles that are removed. The larger diameter replacement conductors on the lattice tower are seen against the sky at this roadway crossing, and other than being higher overhead, the new conductors look similar to the existing line. The replacement lattice tower is similar in form and scale to the existing lattice tower seen on the left, however, the replacement structure represents a noticeable change to existing visual conditions at this location because it is taller and closer to the road compared with the two wood poles it replaces. At the same time, due to the height of the new tower, which allows for a longer span, the two existing wood poles situated just beyond the left side of the simulation view are permanently removed and both the HB-H #1 and HB-E conductors are located on the new tower. In light of these changes, the project would result in fewer utility structures being seen in the area. Taken together, the effect of the changes described above will not substantially alter the overall existing visual character of the landscape seen at this residential location.

Figure 3.1-5a from Viewpoint 7 along Elk River Road looking north at a location within the coastal zone, represents a motorist's view along this moderately travelled rural road that connects local motorists to Highway 101. Open pasture and wetlands with few mature trees characterize the area, and scattered rural structures, including residences and barns, can be seen along the roadway. Open views toward the project route are available from this roadway. Located approximately a mile away, Humboldt Bay is not visible from this viewpoint within the coastal zone due to intervening terrain. In this photograph, project poles can be seen approximately 300 feet away with overhead conductors spanning the road, and further away another utility line is also visible crossing the road. At this location, existing overhead utility lines also run parallel or can be seen in close proximity to both sides of Elk River Road.

The Figure 3.1-5b simulation shows the existing wood pole on the left side of the road replaced by a wood pole of the same height. Initially, the new replacement pole may be somewhat darker in color than the older, existing pole; however, over time it will weather to a lighter tone that will be similar to nearby poles seen in the vicinity. The existing pole on the right side of the road remains virtually unchanged with only replacement insulators. Overhead conductors are a somewhat larger diameter and could appear slightly more noticeable, although this change will likely not be evident to the casual observer. A comparison of the existing view and visual simulation demonstrates that the project change at this location will be minor. Additionally, at typical travel speeds of 45 mph, the duration of affected views will be brief, lasting less than a minute. Given the brief view duration and minor degree of change, the visual effect will not be particularly noticeable and will not substantially affect the character of the landscape setting along this local roadway.

Figure 3.1-6a, an existing view from Viewpoint 9 along Gatliff Avenue near Ryan Court looking south, is representative of the Pine Hill residential area where one- and two-story house are located on the higher ground south of Eureka, between Humboldt Bay and the Eureka Municipal Golf Course. From Gatliff Avenue, the hill slopes down to the east toward the golf course, and as seen in the photograph, houses on the east (left) side of the road are situated slightly downhill of houses across the street. A glimpse of the Elk River area to the south can be seen beyond mature conifers. The existing wood pole in the foreground is located in the sidewalk next to the street and is seen mainly against the sky backdrop, partially screened by a vehicle parked on the street. The second, more distant wood pole is seen against the sky with the lower portion hidden behind a fence and vegetation. Although this viewpoint is within the coastal zone, distant views of coastal landscape features to the south or west are not available from this location.

The Figure 3.1-6b visual simulation shows two somewhat taller poles replace two existing wood poles in locations similar to the original structures. The closer pole is wood, and the more distant pole is steel. Initially the new wood replacement pole may appear darker than the existing pole, which could result in the new structure being somewhat more noticeable against the sky; however, over time the new pole will weather to a lighter color that will be similar to existing poles. Larger diameter replacement conductors could also be slightly more noticeable; however, it is expected that the change would not be evident to the casual observer. Given the similar form, location, and material of the replacement structures and because the new structures will weather to become lighter and similar in color to the existing poles, the project represents a minor, incremental change to existing visual conditions that will not substantially alter the composition or character of the landscape in this residential area.

Figure 3.1-7a, taken from Viewpoint 13 along Campton Road near Grant Elementary School, represents a view from the nearby elementary school campus as well as from this residential area of Eureka where school buildings and play equipment are visible on the far side of the road and pavement seen in the immediate foreground includes school crossing markings. On the right, a wood project pole is visible at the intersection with Oak Street, located approximately 300 feet away. Beyond the school buildings, two other project poles appear silhouetted against the sky. In addition, utility poles supporting other overhead lines are visible nearby, although not seen in this photograph. Views toward the project are generally open from this location; however, school buildings and relatively young trees partially screen conductors and portions of the poles. Although this viewpoint is within the coastal zone, distant views of coastal landscape features to the north or west are not available from this location.

The Figure 3.1-7b simulation shows the nearest existing wood project pole on the right is replaced by a taller wood pole. The replacement pole is relocated to be slightly further from the street corner. On the left, the two existing wood poles are replaced with somewhat taller wood poles in the approximately the same locations. Conductors with a slightly larger diameter replace existing conductors, a visible change that would generally not be noticeable to the public. The simulation also shows the replacement pole darker than the existing weathered wood pole; however, as it weathers, the color of the new pole will lighten to be more similar to the color of existing wood poles. While the replacement pole and conductors are somewhat more visible, they are similar in form and scale to the existing project components. A comparison between the existing view and visual simulation demonstrates that the overall project-related change at this location could be somewhat noticeable but will not substantially affect the existing visual setting.

Figure 3.1-8 is from Viewpoint 17 along Mitchell Heights Drive near Humboldt Substation looking west, away from Humboldt Substation. A view looking east from Mitchell Heights Drive shows the substation (Photograph 18). This KOP represents the residential area located south of Myrtle Avenue in the uplands situated east of Eureka and Ryan Slough. Some distant views of coastal landscape features to the north are available from this area within the coastal zone, but are not seen in this view looking west towards the project. Compared with residential areas along the central portion of the project route, the residential development pattern around the substation is less dense and appears more rural in character due to larger lots interspersed with mature trees and a general absence of sidewalks. This view shows roofs of houses partially visible amidst large shrubs and trees against backdrop tall conifers situated approximately 750 feet away along the Ryan Slough. Three project poles are visible on the left (south) side of Mitchell Heights Drive, and another utility line can be seen on the opposite side of the street. Overhead conductors cross the road and continue north along Main Street, where another wood project pole is seen against the forested backdrop on the left. Mature residential landscaping including conifers and large shrubs partially screens close range views of the project power line, restricting views of more distant poles.

The simulation in Figure 3.1-8b shows replacement of the four existing poles with somewhat taller new wood poles, in a similar location to each of the poles being replaced. A new pole is also seen to the right of the closest pole. The new poles are shown somewhat darker brown than the color of existing poles; however, as they weather, the color of the new poles will lighten and appear more similar to the existing poles. The replacement pole in the foreground has post insulators and a narrower form compared to the arms and insulators on the existing pole. A comparison of the existing view and visual simulation indicates that, at this location, the project represents a minor, incremental change that will not be particularly noticeable, given the similar form and material of the replacement structures and the presence of multiple existing utility structures.

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

CEQA requires that the project be evaluated as to whether its implementation has 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.

The project lies approximately 0.5 mile from a vista point near Highway 101 (Spruce Point). Although visible from this location, the project is not in the primary direction of the vista. Furthermore, as shown in Photograph 3 on Figure 3.1-2b, project-related changes would not be particularly noticeable from this area due to the viewing distance and the presence of intervening structures and vegetation, and thus would not have a substantial effect on the existing vista. Therefore, the proposed project will not substantially affect 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? *Less-than-Significant Impact*

The project will not substantially damage scenic resources within a state scenic highway. As documented in Section 3.1.2.1, there are no designated state scenic highways within the project viewshed. The project crosses Highway 101, which is an eligible state scenic highway. As outlined above in the Visual Change Section above and demonstrated by the Figure 4.1-3b visual simulation, the project would not substantially affect the composition or character of landscape views seen from the highway corridor. Therefore, the impact will be less than significant.

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

Construction-related activity including installation of replacement structures, installation of new conductors, and removal of existing structures, as outlined in Chapter 2.0, Project Description, 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. To varying degrees, construction activity will be seen by local residents and motorists; these effects will be relatively short term, and could be most noticeable to residents who live in close proximity to the project. For the most part, construction will take place along public roads situated within an area where use of trucks and other equipment is relatively common. Additionally, views of construction areas from within some nearby residential areas, particularly those located near Humboldt Substation, are generally screened by vegetation.

Construction of the project is estimated to take approximately six-eight months to complete; however, at any one location along the project route construction will take a month or less. Given the short-term nature of construction activities, as well as the presence of vegetation screening at nearby residential areas, temporary construction-related visual effects will be less than significant. Implementation of APM AE-1, APM AE-2, and APM AE-4 will further minimize these less-than-significant impacts.

Project construction will require some tree trimming of some and removal of approximately 20 trees. Because the tree removal and tree trimming will occur primarily in areas that are not in proximity to residences or other areas where intervening vegetation and structures provide a measure of screening, the change is not expected to be noticeable in key public views.

Permanent visual change associated with reconductoring and replacing existing structures within the existing power line alignment will not substantially degrade the existing visual character or quality of the site and its surroundings. These permanent visual effects will take place within a landscape that includes existing project power lines and other utility lines along nearby and adjacent utility alignments, as well as substations, a power plant, and visible roadway infrastructure. In some instances, intervening buildings, landscaping and other built components largely screen or obstruct views of project elements. Where visible, the modifications along the existing alignment would generally be seen by motorists or residents as a minor, incremental change within this primarily developed landscape context. Permanent impacts would be somewhat noticeable at a limited number of locations.

Originating at Humboldt Bay Substation adjacent to the HBGS facility, the project power line crosses Highway 101 and extends northeast through parts of the City of Eureka and unincorporated communities of Pine Hill, Cutten, and Humboldt Hill. Within this area, established built elements of the visual landscape include existing utility structures such as lattice towers, wood and steel utility poles, and overhead conductor. The project proposes replacing existing wood and LDS structures with new poles, and four lattice steel towers. The replacement poles will generally range from approximately 10 feet shorter to 41 feet taller than existing poles, and the lattice towers will range in height from approximately 85 to 115 feet. The longer span length between the four lattice steel towers will result in the removal of approximately 14 existing wood poles and shortening of seven others on the HB-H #1 line and the HB-E line.

The evaluation of Visual Change documents and the set of visual simulations from six KOPs demonstrate that the project represents an incremental change that will not substantially alter existing views or degrade the existing visual character or quality of the site and its surroundings. The Figures 3.1-3b through 3.1-8b demonstrate that permanent project changes would not have a substantial effect and would not degrade views of natural landscape features including coastal plain or forested and slough areas located in the coastal zone. Comparison of the Figure 3.1-3a with Figure 3.1-3b also shows the project would not substantially affect views experienced by motorists traveling along Highway 101, a regional corridor and eligible state scenic highway. Additionally, pairs of existing and post-project views of the project from three KOPs located in established residential areas situated along the route demonstrate that the incremental project-related changes will not substantially alter the existing visual character or quality of the landscape at these areas (refer to Figures 3.1-4, 3.1-6, and 3.1-8). Accordingly, the change brought about by the project will not substantially degrade the existing visual character or quality of the site and its surroundings.

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 light or glare that would adversely affect the day or nighttime view in the area.

Nighttime construction is not planned and would not occur unless required for clearances, or other safety or logistics concerns that would take place under very limited, short-term circumstances. Potential staging areas may use nighttime lighting for security. In these cases, temporary lighting will be directed on work or staging areas and the potential additional lighting will represent a minor incremental change to existing nighttime lighting conditions. The impact will be less than significant, and implementation of APM AE-1 (i.e., nighttime lighting to minimize potential visual impacts of construction activity) and APM AE-4: (i.e., design and operation of staging areas to minimize potential visual impacts) will further reduce short-term, less-than-significant effects. The project does not propose any permanent new lighting.

New lattice steel towers and steel poles will have a finish that will weather to a dull, non-reflective patina and thus reduce potential glare (APM AE-3). Replacement wood poles will not constitute a potential source of glare. Replacement conductors will weather to a non- reflective finish similar to existing conductors. Given the characteristics described above, the project will not create a new source of substantial light or glare that would adversely affect the day or nighttime views in the area; therefore, the impact will be less-than-significant.

3.1.5 REFERENCES

Benchmark Maps. 2017. *California Road and Recreation Atlas*. *Tenth Edition.* Santa Barbara, California.

California Department of Transportation. 2017. *California Scenic Highway Program.* Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed: June 4, 2018.

California Office of Historic Preservation. *California Historical Landmarks by County*. Available at: http://ohp.parks.ca.gov/?page_id=21420. Accessed: June 4, 2018.

City of Eureka. 2018. City of Eureka 2040 General Plan. Available at: http://www.eureka2040gpu.com/project_document_library.html. Accessed November 13, 2018.

Humboldt County. 2014. *Humboldt County General Plan. Volume II: Humboldt Bay Area Plan of the Humboldt County Local Coastal Program.* Amended and Fully Adopted, November 29, 1983. Available at: https://humboldtgov.org/DocumentCenter/View/50844/Humboldt-Bay-Area-Local-Coastal-Plan?bidId=. Accessed: May 2, 2018

Humboldt County. *2017. Humboldt 21st Century General Plan. Humboldt County General Plan Update.* Available at: https://humboldtgov.org/273/General-Plan-Update. Accessed May 15, 2018.

Humboldt County. 2014. *PROJECT REPORT - Proposed McKay Tract Community Forest: Eureka, Cutten, Myrtletown, Ridgewood Heights Ryan Creek Watershed, Humboldt County. Available at:* https://humboldtgov.org/mckaycommunityforest. *Accessed June 4, 2018.*

U.S. Department of Transportation. 2015. *Visual Impact Assessment for Highway Projects* Available at: http://www.environment.fhwa.dot.gov/guidebook/documents/VIA_Guidelines_for_Highway_Projects.asp#f. Accessed: June 4, 2018.

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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 there will be no impacts on agricultural and forest resources. 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

Williamson Act

The California Land Conservation Act, better known as the Williamson Act (California Government Code Section 51200 et seq.), is designed to preserve agricultural and open space land. It establishes a program of private landowner contracts that voluntarily restrict land to agricultural and open space uses. In return, Williamson Act parcels receive a lower property tax rate consistent with their actual use instead of their market rate value. Lands under contract may also support uses that are “compatible with the agricultural, recreational, or open-space use of [the] land” subject to the contract (California Government Code Section 51201[e]). Under Government Code Section 51238, electric facilities are determined to be a compatible use.

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.

Forest Taxation and Reform Act

Commercial timberlands are afforded protection through the state’s Forest Taxation Reform Act of 1976, which mandates the creation of timberland preserve zones to restrict and protect commercial timber resources.

California Public Resources Code

The California Public Resources Code (Cal PRC) contains the following definitions:

- Forest Land: Section 12220(g) defines “forest land” as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.
- Timberland: Section 4526 defines timberland as land—other than land owned by the federal government and land designated by the State Board of Forestry and Fire Protection as experimental forest land—that is available for and capable of growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.

Local

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. The section below 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.

3.2.2.2 Methodology

Various sources were consulted to complete the analysis for agricultural and forestry resources, including the DOC FMMP data and maps, Williamson Act contract maps, aerial photographs, county general plans and zoning ordinances, and environmental impact reports for other projects in the area. The mapped agricultural and forestry 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. Local plans and ordinances were reviewed including the Humboldt County General Plan (adopted October 23, 2017), the Humboldt Bay Area Plan for the Humboldt County Local Coastal Program (amended December 2014), the Humboldt County Zoning Code, Humboldt County's Guidelines for Establishment of Agricultural Preserves in the County of Humboldt, the City of Eureka 2040 General Plan (amended May 2018), and the City of Eureka Zoning Ordinances.

3.2.3 ENVIRONMENTAL SETTING

3.2.3.1 Regional

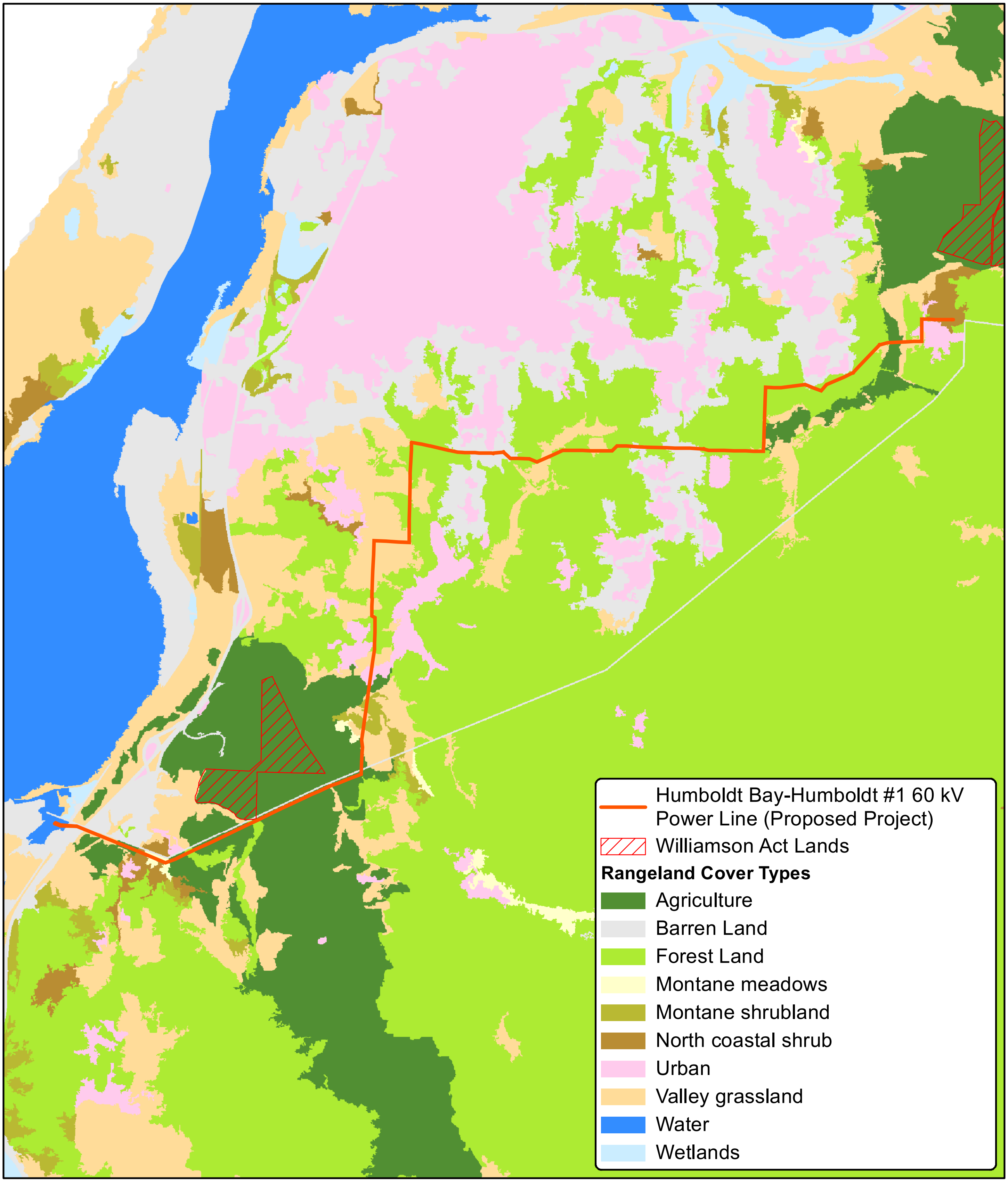
Humboldt County is characterized by gently to steeply sloping topography and flat valleys supporting a variety of uses, including agriculture (ranching, livestock grazing, nurseries, and row crops), and timberlands. The Natural Resources Conservation Service (NRCS) completed a soil survey in the central portion of Humboldt County in 2013. Williamson Act Agricultural Preserves and prime farmlands, as designated by California Government Code Section 51201(c), are located throughout the County. Humboldt County is listed as an "unmapped" area by the California DOC FMMP (DOC 2014).

3.2.3.2 Local

The project alignment traverses through pastures and forests within Humboldt County and the City of Eureka. Agriculture and forestry resources are primarily located in the Elk River Valley in the southwest portion of the project corridor, and along Ryan Creek and Ryan Slough in the northeast portion of the project corridor in Humboldt County. Agricultural lands are also located within the headwaters of Martin Slough. These areas include various types of agricultural activities, including livestock grazing (primarily horse pasture), ranching, forests, wetlands, creeks, and sloughs. Figure 3.2-1 depicts Williamson Act Program and Rangeland Cover Types in the project vicinity. While one corner of Williamson Act land is adjacent to the project alignment, there are no parcels subject to a Williamson Act Contract located within the project footprint.

Humboldt County

The following agriculture-related Humboldt County zoning districts are crossed or are immediately adjacent to the existing alignment as shown in Figure 3.2-2: Agricultural Zoning Designations.



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 3_2-1 Williamson Act and Rangeland Cover Types.mxd

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FIGURE 3.2-1
Williamson Act and Rangeland Cover Types
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

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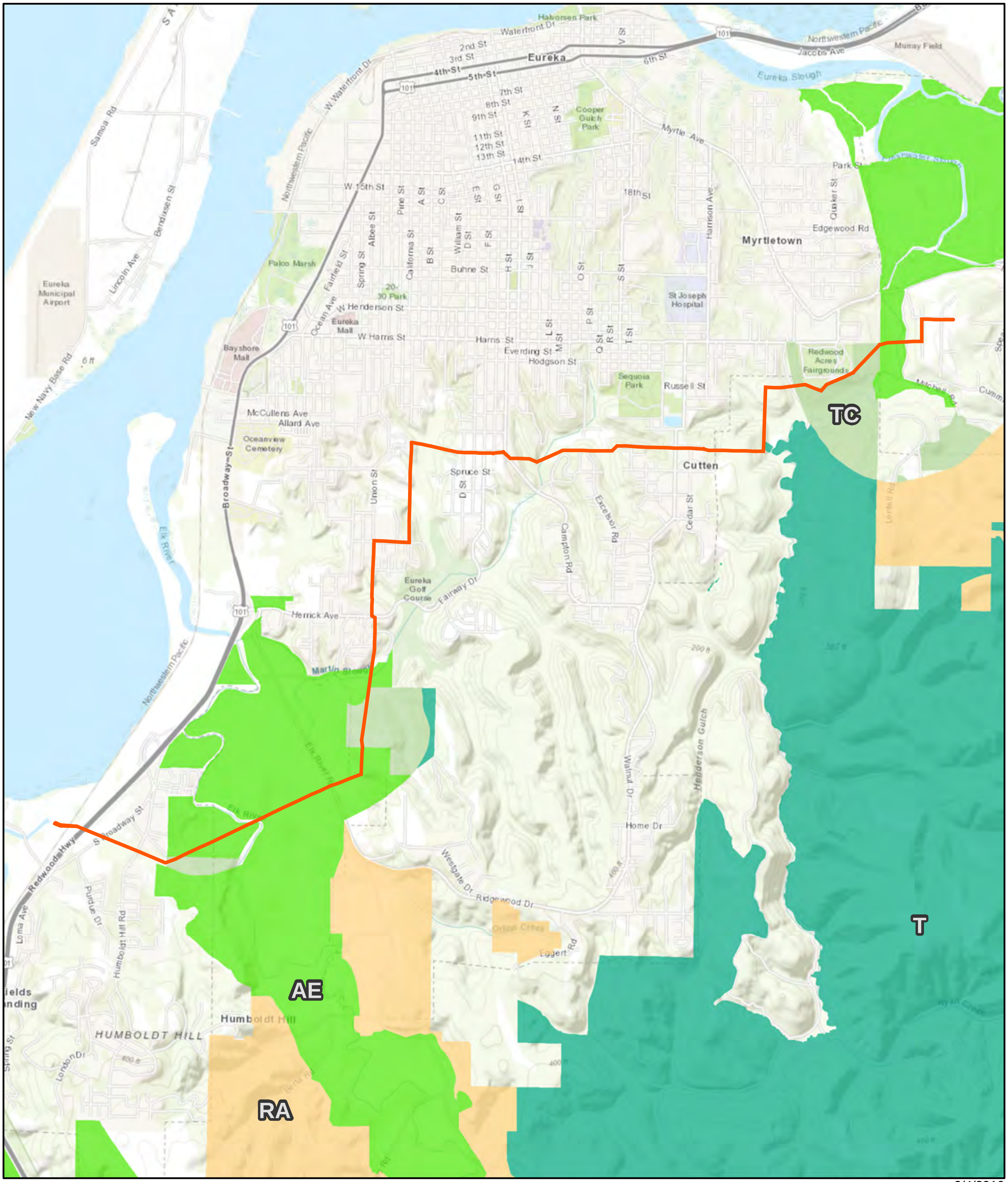
TRC
Results you can rely on



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 3_2-2 Agricultural Zoning Designations.mxd

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Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)
Agricultural Exclusive (AE)
Residential
Coastal Timberland (TC)
Timberland (T)

FIGURE 3.2-2
Agricultural Zoning Designations
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

0 0.5 1
Miles

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TRC
Results you can rely on

Agriculture Exclusive (AE). The Agriculture Exclusive or AE Zone is located in fertile areas where agriculture is and should be the desirable predominant use. These zones are designated to protect agricultural resources from encroachment from incompatible uses. While the Humboldt County Code Zoning Regulations do not specifically address the compatibility of electric transmission facilities in the AE Zone, the Humboldt County General Plan indicates that the erection, construction, alteration, or maintenance of electric transmission facilities is a compatible use for lands designated AE (see Section 3.10, Land Use and Planning for further discussion).

Timberland Production (T and TC). The Timberland and Coastal Timber zones are intended to provide standards and restrictions for the preservation of timberlands for growing and harvesting timber. Per the Humboldt County Code Zoning Regulations Section 313-7.3, the erection, construction, alteration, or maintenance of electric transmission facilities is a principal permitted use compatible with timber production.

City of Eureka

The project alignment does not cross lands zoned for agricultural or forestry use within the City of Eureka.

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 and assess potential project-related construction and operational impacts. Because the project will have no impact on agricultural and forest resources, Applicant-Proposed Measures (APMs) have not been included for this section.

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

The project will have no impact on agricultural and forest resources and no APMs are proposed.

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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV

Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur.

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? *No Impact*

As discussed in Section 3.2.3.2 above, Humboldt County has not yet been mapped for Prime Farmland, Unique Farmland, or Farmland of Statewide Importance per the FMMP protocol (DOC 2014). The project consists of replacing existing poles; no permanent conversion of farmland will occur as a result of the project. 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 is a compatible use in agricultural zones and will not conflict with existing zoning. No Williamson Act contract lands will be affected. Therefore, no impact will occur.

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

The project alignment crosses lands zoned for Timberland Production in unincorporated Humboldt County. In these areas, replacement poles will be installed adjacent to existing poles within the existing alignment for the Humboldt Bay-Humboldt #1 60 kV Power Line. As discussed above, the erection, construction, alteration or maintenance of electricity transmission facilities are identified in the Humboldt County General Plan as compatible uses with timber production. Therefore, the project will not conflict with existing zoning, and construction and operation of the project will not cause rezoning, 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*

The project replaces existing structures and will not result in the loss of forest land or conversion of forest land to non-forest use. Therefore, no impact will occur.

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

The project will reconductor an existing power line that is located within existing utility corridors. Therefore, project implementation will not discourage the continued use of surrounding land for agricultural purposes, and no impact will occur.

3.2.5 REFERENCES

California Department of Conservation (DOC). 2012. Farmland Mapping and Monitoring Program. Available at: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx. Accessed: August 14, 2018.

______. 2015. *Williamson Act Program*. *Humboldt County Williamson Act FY 2015/2016*. Available at: http://www.conservation.ca.gov/dlrp/lca/Pages/index.aspx. Accessed: August 14, 2018.

City of Eureka. 2011. *Zoning Ordinance, Chapter 155*. Available at: http://library.amlegal.com/nxt/gateway.dll/California/eureka/titlexvlandusage/chapter155zoningregulations?f=templates$fn=default.htm$3.0$vid=amlegal:eureka_ca$anc=JD_155.118. Accessed: August 14, 2018.

Humboldt County. 2000. *Humboldt County Zoning Code*. Available at: https://humboldtgov.org/DocumentCenter/View/4029/Humboldt-County-Zoning-Regulations-PDF. Accessed: August 10, 2018.

______. 2014. *Humboldt County General Plan Volume II; Humboldt Bay Area Plan of the Humboldt County Local Coastal Program*. Amended December 2014. Available at: https://humboldtgov.org/DocumentCenter/View/50844/Humboldt-Bay-Area-Local-Coastal-Plan. Accessed: August 14, 2018.

_______. 2016. *Guidelines for Establishment of Agricultural Preserves in the County of Humboldt*. Certified December 13, 2016. Available at: https://humboldtgov.org/DocumentCenter/View/57196/Agricultural-Preserve-Guidelines-?bidId=. Accessed: August 14, 2018.

______. 2017. *Humboldt County General Plan for Areas Outside the Coastal Zone.* Adopted October 23, 2017. Available at: https://humboldtgov.org/DocumentCenter/View/61984/Humboldt-County-General-Plan-complete-document-PDF. Accessed: August 14, 2018.

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 North Coast Unified Air Quality Management District (NCUAQMD). 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 oxides (SO_x), 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 California Environmental Quality Act (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. NAAQS 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. 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 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 EPA to set standards for toxic air contaminants and required facilities to sharply reduce emissions.

Table 3.3-2: Ambient Air Quality Standards below 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. California specifies four additional criteria pollutants: visibility-reducing particles (VRP), sulfates, hydrogen sulfide (H_2S), and vinyl chloride. Similar to 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	-- 0.070 ppm	-- 0.070 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 12 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) [g]	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 CAAQS for ozone, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and VRP), are values that are not to be exceeded. All others are not to be equaled or exceeded.

b NAAQS (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 3 years, is equal to or less than the standard. For PM_{10}, 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 $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 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 Pb 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

The project is located within the jurisdiction of the North Coast Unified Air Quality Management District (NCUAQMD). The NCUAQMD is the regional agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution pursuant to delegated state and federal authority. Because the project will not involve construction of new stationary sources, there are no permitting regulations relevant to the project.

Under the California Clean Air Act, the NCUAQMD is required to develop an air quality plan to achieve and/or maintain compliance with federal and state nonattainment criteria pollutants within the air district. The NCUAQMD is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards with the exception of the state 24-hour particulate (PM_{10}) standard in Humboldt County only. NCUAQMD prepared a draft PM_{10} Attainment Plan (NCUAQMD 1995) and plans to update it in the future. Currently, the NCUAQMD does not suggest relying on this plan since it is not needed to achieve attainment status.

The NCUAQMD has not developed CEQA guidelines or formally adopted significance thresholds, but rather utilizes the Best Available Control Technology (BACT) emission rates for stationary sources as defined and listed in the NCUAQMD Rule and Regulations, Rule 110 - New Source Review (NSR) And Prevention of Significant Deterioration (PSD), Section 5.1 - BACT.

Local

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

3.3.2.2 Methodology

Short-term construction emissions of CO, SO_x, 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 2016.3.2 (CalEEMod). Some construction equipment is expected to be used less than 5 days per week; however, to be conservative and maintain flexibility in construction operations, all equipment was modeled as operating 5 or 6 days per week. Helicopter emissions were estimated manually using emissions factors obtained from the Swiss Federal Office of Civil Aviation (FOCA) (FOCA 2015). Detailed construction emission calculations will be provided separately to CPUC staff.

3.3.3 ENVIRONMENTAL SETTING

3.3.3.1 Regional Setting

Humboldt County is located in northwest California. The County is bordered to the north by Del Norte County, to the east by Siskiyou and Trinity counties, to the south by Mendocino County, and to the west by the Pacific Ocean. The County encompasses 2.3 million acres, 80 percent of which is forestlands, protected redwoods, and recreational areas.

Humboldt County is an area of moderate temperatures and considerable precipitation. Temperatures along the coast vary only 10°F from summer to winter, although a greater range is found in inland areas. Temperatures of 32°F or lower are experienced nearly every winter throughout the area, and colder temperatures are common in the interior. Maximum readings for the year often do not exceed 80°F on the coast, while 100+°F readings occur frequently in the mountain valleys.

In most years, some rainfall is experienced every month, although amounts are negligible from June through August. Seasonal totals average more than 40 inches in the driest area and exceed 100 inches in the zones of heavy precipitation. Because of the moisture and moderate temperature, the average relative humidity is high. Largely as a result of the proximity of the cool water of the Pacific Ocean, the adjoining coastal area has cool, stable temperatures. Farther from the ocean, the marine influence is less pronounced and inland areas experience wider variations of temperature and lower humidity.

3.3.3.2 Ambient Air Quality

The following three air quality designations can be given to an area for a particular pollutant:

- Non-attainment: This designation applies when air quality standards have not been consistently achieved.
- Attainment: This designation applies when air quality standards have been achieved.
- Unclassified: This designation applies when there are not enough monitoring data to determine if the area is non-attainment or attainment.

The air in Humboldt, Del Norte, and Trinity counties is considered to be in attainment of state and federal ambient air quality standards with the exception of the State's 24-hour PM_{10} standard in Humboldt County (in which the project is located).

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 as discussed in Section 3.3.4.3.

The NCUAQMD has not adopted significance thresholds for construction activities. Although Best Available Control Technology (BACT) emission rates for stationary sources are defined and listed in the NCUAQMD Rule 110 - New Source Review (NSR) And Prevention of Significant Deterioration (PSD), Section 5.1 – BACT, the proposed project does not include stationary sources of emissions and, thus, the BACT rule does not apply. In the absence of applicable NCUAQMD significance thresholds and based on the recommendation of the NCUAQMD, PG&E has elected to use significance thresholds developed by the Bay Area Air Quality Management District (BAAQMD) for the proposed project (BAAQMD 2017).

Table 3.3-3: Significant Thresholds for Proposed Project

Pollutant	Significance Thresholds		
	Construction – Average Daily Emissions (lbs./day)	**Operation – Average Daily Emissions (lbs./day)**	**Operation – Maximum Annual Emissions (tpy)**
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
NO_x	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
PM_{10}/$PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
ROG	54	54	10

BAAQMD

3.3.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs:

APM AQ-1: Minimize Fugitive Dust. PG&E will minimize fugitive dust during construction by implementing the following measures:

- Reduce the amount of the disturbed area where possible.
- Use water trucks or sprinkler systems in dry weather in sufficient quantity to prevent airborne dust from leaving the site.
- Implement dust control measures as soon as possible following completion of any soil-disturbing activities.
- Establish a policy that vehicle speed for all construction vehicles is not to exceed 15 miles per hour on any unpaved surface.
- Water all active construction areas (including storage piles) as needed to suppress dust. Base the frequency on the type of operation and the soil and wind exposure.

- Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material on the site.
- Sweep adjacent public roads if visible soil material is carried out from a work site.

In addition, PG&E will implement APM GHG-1 to minimize vehicle and equipment emissions.

3.3.4.3 Potential Impacts

Project impacts on air quality were evaluated against the CEQA significance criteria, as discussed below.

As described in Chapter 2.0, Project Description, the proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

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

As discussed above, there are no applicable air quality plans for the NCUAQMD; thus, this project will not conflict with any air quality plans.

As previously discussed in Section 3.3.2.2, the average daily emissions for a range of pollutants for off- and on-road vehicle and helicopter use were calculated using CalEEMod and FOCA 2015, respectively. Survey and preparation of the access roads is assumed to occur prior to structure replacement activities. It is further assumed that lattice steel tower (LST) and tubular steel pole (TSP) installation will not occur concurrently, but all other pole replacement activities will occur concurrently with each of these activities. Emission rates were evaluated without factoring in APM AQ-1 that minimizes fugitive dust or APM GHG-1 that minimizes vehicle and equipment emissions. The average daily emission rates generated are presented in Table 3.3-4: Unmitigated Construction Emissions below. Detailed emissions calculations will be provided separately to the CPUC.

Table 3.3-4: Unmitigated Construction Emissions

Activity	Average[1] Emission Rate (pounds per day)					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Ground Equipment and Vehicles	5.48	37.5	49.24	0.09	3.79	2.20
Helicopter Operations	3.44	10.89	4.11	0.56	3.44	0.44
Total	8.92	48.39	53.35	0.65	7.23	2.64
BAAQMD Threshold Applied[3]	54	54	None	None	82[2]	54[2]
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Note 1: The average emission rate was calculated assuming a 180-day construction period.
Note 2: PM_{10} and $PM_{2.5}$ emissions in this table contain emissions from both combustion and fugitive sources. The Applied Threshold applies to exhaust emissions only.
Note 3: The BAAQMD thresholds, although not applicable to this project, were applied for review purposes based on the recommendation of the NCUAQMD.

The average daily emissions associated with construction activities will not exceed any construction-related thresholds of significance; thus, the project will not conflict with any air quality plan. Therefore, the impact will be less than significant. The proposed APMs will further reduce less than significant impacts by further reducing project emissions.

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

As summarized in Table 3.3-4, the project will not exceed the thresholds of significance, even without implementation of the APMs. APM AQ-1 will further minimize fugitive PM dust (i.e., PM_{10} and $PM_{2.5}$) from all earth disturbance, and APM GHG-1 will further minimize construction emissions. Although Humboldt County, where the project is located, is in non-attainment of the State ambient air quality standard for PM_{10}, construction emissions will not violate any air quality standard or contribute substantially to an existing or project-related air quality violation. Therefore, the impact will be less than significant.

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

The proposed project's contribution to a cumulative air quality impact would be considerable if the incremental increase in emissions from the proposed project exceeds significance thresholds. As shown in Table 3.3-4: Unmitigated Construction Emissions, construction of the project will lead to a temporary increase in criteria pollutants. To further reduce fugitive dust emissions, PG&E will implement APM AQ-1, which includes applying water to exposed areas and reducing vehicle speeds on unpaved areas. To further reduce NO_x emissions, PG&E will implement APM GHG-1, which includes limiting equipment idling time. Even without implementation of these APMs, all criteria air pollutant emissions will be below the BAAQMD significance thresholds and impacts will be less than significant.

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

Sensitive receptors include residences, recreational facilities, and schools located within 500 feet of construction work areas. Approximately 2.4 miles of the alignment is within residential areas, where the existing line is along sidewalks or within residential backyards. Four schools are located within 500 feet of construction work areas; the closest, Grant Elementary School, is located across the street (approximately 50 feet) from the project alignment. Given their proximity to the proposed project, sensitive receptors in the project vicinity could be exposed to temporary increases in criteria air pollutants due to fugitive dust and construction equipment use in the area.

Residences located near four of the helicopter landing zones may experience increased dust during helicopter take-off and landing. However, helicopter activities will be geographically and temporally limited over the six months of construction. Helicopter landings will generate dust; however, landings will be brief and dust effects will be localized. The implementation of APM AQ-1 will control fugitive dust at helicopter landing zones through watering or use of a soil stabilizer. As a result, impacts to the residences due to fugitive dust will be less than significant.

Due to the linear nature of the project, construction activities will be spread across the approximately 7.8-mile-long alignment, and will last between a few days and a few weeks at each construction site. Implementation of APM AQ-1 and APM GHG-1, which include controlling fugitive dust and reducing vehicle emissions, will reduce exposure to sensitive receptors. With implementation of these APMs, impacts to sensitive receptors will be less than significant.

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

Typical odor nuisances include H_2S, ammonia, chlorine, and other sulfide-related emissions. No significant sources of these pollutants will exist during construction. Diesel engine emissions are also a potential source of project-related odor. As previously described, residences are located adjacent to construction work areas. However, because construction will be short term, lasting a few days at each pole to a few weeks at larger structures, and with implementation of APM GHG-1 to minimize vehicle and equipment emissions, impacts due to odor will be less than significant.

3.3.5 REFERENCES

California Air Resources Board (CARB). 2016. Ambient Air Quality Standards chart. Online: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed on October 2, 2018.

North Coast Unified Air Quality Management District. 2018. Air Quality Planning and CEQA web page. Online: http://ncuaqmd.org/index.php?page=aqplanning.ceqa. Accessed on October 2, 2018.

______. 2018. Personal communication between Jason Davis/NCUAQMD and Casey Anderson/TRC Solutions. September 20, 2018.

Bay Area Air Quality Management District. 2017. *CEQA Guidelines.* May 2017.

Swiss Federal Office of Civil Aviation (FOCA). 2015. Guidance on the Determination of Helicopter Emissions. December 2015.

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 special-status species that could result from the implementation of the project, and concludes that impacts on biological resources will be less than significant with incorporation of the Applicant-Proposed Measures (APMs) described in Section 3.4.4.2. 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 provided 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?	☐	☐	☐	☒
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 on 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.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 (16 USC Section 668) specifically protects bald and golden eagles and their nests from harm or trade in parts of these species. The

1972 amendments increased penalties for violating provisions of the BGEPA or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the BGEPA.

Waters and Wetlands: Clean Water Act Sections 401 and 404

The purpose of the Clean Water Act (CWA) (33 USC Section 1251 et seq.) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Waters of the United States include rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3).

The U.S. Army Corps of Engineers (USACE) issues permits for work in wetlands and other waters of the United States based on guidelines established under Section 404 of the CWA. Section 404 of the CWA prohibits the discharge of dredged or fill material into waters of the United States, including wetlands, without a permit from USACE. U.S. EPA also has authority over wetlands and may, under Section 404(c), veto a USACE permit.

Section 401 of the CWA requires all Section 404 permit actions to obtain a state Water Quality Certification or waiver, as described in more detail in Section 3.9, Hydrology and Water Quality.

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

[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.

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.

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.

California Coastal Act

As described in Section 3.10 Land Use and Planning, projects located in the coastal zone may require a Coastal Development Permit (CDP). CDPs are issued either by the California Coastal Commission (CCC) directly or a local jurisdiction with an approved Local Coastal Program (LCP). An important California Coastal Act (CCA) policy is the protection, enhancement, and restoration of environmentally sensitive habitats and areas. Section 30107.5 of the CCA defines an "environmentally sensitive area" as "…any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments." In addition, the CCA uses a broader definition of wetlands (1-parameter) than the definition used by USACE and US Environmental Protection Agency to define federally jurisdictional wetlands under the Clean Water Act (3-parameter).

Humboldt Bay Area Plan of the Humboldt County Local Coastal Program. The Humboldt Bay Area Plan of the Humboldt County LCP identifies requirements for development within the coastal zone adopted by Humboldt County, and certified by the CCC, to satisfy the policies and requirements for coastal land use contained in the CCA of 1976 (Public Resource, Code 30000 et seq.) and other related legislation. Approximately 4.2 miles of the existing power line alignment occur within the jurisdictional boundary of the Humboldt County LCP. Section 3.30 of the LCP describes the Natural Resources Protection Policies and Standards for biological resources. Zoning regulations that implement the policies of the Land Use and Development portion of the adopted LCP are codified in Chapters 2 and 3 of the Humboldt County Code Zoning Regulations.

As detailed in Section 3.10, portions of the project are also within the retained jurisdiction of the CCC. Humboldt County has requested to have the project consolidated to allow the CCC to review and implement the permitting requirements for the entire project.

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 is provided for informational purposes and to assist with CEQA review.

Humboldt County General Plan and Zoning Codes. Outside of the coastal zone, Chapter 4, Section 314-61.1 of the Humboldt County Code Zoning Regulations codifies the County's Streamside Management Area Ordinance, which establishes standards pertaining to the use and development of land located within Streamside Management Areas (SMAs) and other wet areas such as: natural ponds, springs, vernal pools, marshes, and wet meadows for projects subject to local land use jurisdiction.

Other policies described in the Humboldt County General Plan to protect biological resources include: planning and zoning areas with sensitive habitats for long-term sustainability of the habitat, characterizing wetlands in the vicinity of proposed projects, conserving and minimizing impacts to oak woodlands, managing and controlling noxious and exotic invasive plant species, coordinating with agencies to review plans for development within sensitive habitat (including SMAs), and establishing a program to identify and protect landmark trees.

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. The project area includes all areas that may be impacted by the project footprint as well as a survey buffer area. Specifically, the 'project area' includes: a 300-foot-wide corridor extending 150 feet on either side of the project alignment, project access routes (including unimproved access routes extending 25 feet along either side from the road center line, where located outside of the 300-foot corridor), and any construction work areas, staging areas, and helicopter landing zones located beyond the 300-foot corridor or the 25-foot buffer. As described below, biologists began their research with database searches and literature reviews to determine which special-status plants, natural communities, fish, and wildlife might have potential to occur in the project area. Using this information, the biologists conducted field surveys of the biological resources in the project area. The methodology section includes field surveys from 2011, 2012, 2016, 2017, and 2018. Concurrent with the 2016 focused special-status plant surveys and 2018 wetland delineation described below, the existing 2012 biological data set was reviewed and revised to accurately identify any change in existing baseline conditions, determine the presence of new rare plant populations, and identify any shifts in habitat type or suitability that could result in a different assemblage of special-status wildlife or fish species in the project area. A more detailed description of these methods and multi-year approach is provided in the project's Biological Resources Technical Report (BRTR), which will be provided separately to the CPUC.

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;
- Plants designated as rare under the California Native Plant Protection Act (CNPPA);
- Fish or wildlife designated as a Species of Special Concern or a fully protected species by the CDFW; or
- Migratory birds with active nests, defined as containing eggs or dependent young.

Sensitive Natural Communities

Natural communities were considered sensitive if they were ranked as critically imperiled (S1), imperiled (S2), or vulnerable (S3) on CDFW's List of California Sensitive Natural Communities (CDFW 2018).

Database Searches

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

- USFWS list of federally listed and proposed endangered, threatened, and candidate species and their designated critical habitat;
- National Marine Fisheries Service's (NMFS), West Coast Region, California Species List Tool;
- California Native Plant Society's (CNPS) online Inventory of Rare and Endangered Vascular Plants of California; and
- California Natural Diversity Database (CNDDB).

The CNDDB database query was based on a search of the U.S. Geological Survey 7.5-minute quadrangles in which the project is located (Fields Landing, Eureka, Arcata South) and the surrounding quadrangles (Tyee City, Cannibal Island, McWhinney Creek, Ferndale, Fortuna, Hydesville, Arcata North, Blue Lake, Korbel, and Iaqua Buttes).

Other information sources consulted to determine which special-status species may occur in the project area included:

- 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;
- Jepson Manual: Vascular Plants of California;
- Green Diamond Resource Company unpublished northern spotted owl data (2010-2017);
- unpublished draft maps of the project area, which included 2012 sightings of special-status wildlife (AMEC 2012); and
- species-specific literature on species descriptions and life history.

Field Surveys

Field surveys were conducted by foot in accessible portions of the project area containing natural habitat. Some locations were only able to be surveyed remotely due to access restrictions. In these cases, habitat quality and species suitability were inferred based on direct visual observation, aerial imagery, and best professional judgement.

Reconnaissance Surveys

Reconnaissance-level field assessments conducted for the project for special-status fish and wildlife species included:

- A reconnaissance-level fish and wildlife habitat assessment conducted in 2011 along a subset of accessible project area locations, including upland areas and aquatic habitats in Buhne Slough, Elk River, Martin Slough, and Ryan Slough (Stillwater Sciences 2011);
- A wildlife survey conducted in the project area in 2012 (AMEC 2012);
- A habitat assessment for tidewater goby conducted around Buhne Slough in September 2017; and
- Field meetings with planning and construction team members in and around the project area in April 2017 and June 2018.

Focused Surveys

A protocol-level field survey for special-status plant species was conducted within the project area on June 21, 23, 24, 28, and 29, 2016, as described in the BRTR.

A survey to evaluate habitat conditions for special-status fish species in Buhne Slough was conducted in October 2017. Breeding conditions and general habitat suitability for special-status fish within the slough and surrounding wetlands were evaluated, including assessing habitat connectivity to Humboldt Bay. The field survey included a general characterization of aquatic habitat, photo documentation, and *in-situ* water quality measurements; the results are presented in the BRTR.

Vegetation Mapping

Vegetation mapping of the project area was completed in 2012 (AMEC 2012) and updated in 2016 and 2018 (Stillwater Sciences 2019a). Vegetation type and composition were updated using information from field surveys and the wetland delineation; mapped vegetation type boundaries within the project area were revised as necessary. Updated vegetation types were classified according to the online Manual of California Vegetation (CNPS 2018) and incorporated into a GIS database to produce a comprehensive vegetation map. Vegetation alliances and stands were then grouped following the California Wildlife Habitat Relationship (CWHR) habitat classification scheme (Mayer and Laudenslayer 1988, with updates) and mapped accordingly. The detailed results of the vegetation mapping are presented in the BRTR and summarized below.

Wetland Delineations

Waters of the U.S., including wetlands, potentially subject to the jurisdiction of the USACE (under Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act of 1899 [33 U.S.C. 401 et seq.]) were identified and delineated for the project (AMEC and Burleson 2012), and re-assessed in 2016 and 2018 (Stillwater Sciences 2019b). Wetland boundaries were delineated at the transition to upland habitats; methods for sampling and evaluating each parameter—hydrology, soils, and vegetation—were in accordance with the USACE Wetlands Delineation Manual (USACE 1987) and Regional Supplement to the USACE Wetland Delineation Manual: Western Mountain and Valley Region (USACE 2010) as detailed in Stillwater Sciences (2019b). Detailed information on waters and wetlands subject to USACE jurisdiction is provided in the jurisdictional wetland delineation completed for the project (Stillwater Sciences 2019b), which will be submitted separately to the CPUC.

Coastal Zone Wetlands

Portions of the project area located in the coastal zone were evaluated to determine whether they met the more expansive one- parameter CCC definition of a wetland (i.e., the site has one or more positive indicators of wetland conditions including wetland hydrology, hydric soils, and/or hydrophytic vegetation). Portions of the project area subject to CCC jurisdiction were mapped accordingly as either one-parameter or three-parameter wetlands (i.e., meets all three indicators of wetland conditions). All potential CCC one-parameter wetlands in the project area are described in detail in the BRTR and summarized below.

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.
- *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 the project area, or focused or protocol-level surveys did not detect the species.

3.4.3 Environmental Setting

3.4.3.1 Regional

Plant communities in the project area include those that are common to the northern California coast, including redwood forest, annual and perennial grasslands (both wet and upland), montane riparian forest, freshwater emergent wetlands, saline emergent wetlands, and coastal scrub. Although many of the annual and perennial grasslands within the coastal zone are actively hayed and utilized as pasturelands, they sometimes meet both the USACE and CCC wetland criteria when they are located within the Elk River floodplain. The project area includes numerous riverine features, namely Buhne Slough, Elk River, Martin Slough, Ryan Slough, Ryan Creek, and associated unnamed tributaries. Saline and freshwater wetlands are the dominant habitat type in the first mile of the project area (immediately west of the Humboldt Bay Generating Station), after which it changes to annual/perennial grasslands and riparian habitat associated with the Elk River floodplain. The project area meanders north then east, where is passes through urban Eureka and small tracts of second- and third-growth redwood forest fragments at the southeastern edge of the City. The project area ends at Humboldt Substation. The climate is typically mild and influenced by coastal fog in the summer. The region is situated in the Northern Coast Ranges, and elevations range from approximately 0 to 160 feet above sea level.

Landcover, Vegetation, and Wildlife Habitats

Approximately 36% of the project area contains urbanized areas. Outside of these developed areas, the dominant vegetation types in order of geographic extent include redwood forest in the central and eastern sections of the project area, annual/perennial grassland in the central area and to the east, montane riparian scattered throughout, and freshwater emergent wetlands primarily concentrated in the western section. Coastal scrub is scattered throughout the project area, and saline emergent wetlands are predominantly within the western portion. Open water (although not a formal CWHR type) was the designation used to identify and map features in the BRTR with surface water visible in aerial imagery (e.g., Buhne Slough, Martin Slough, Ryan Slough, and various ditches). A small amount of closed-cone pine-cypress was mapped at the eastern terminus of the project area. Land cover/vegetation types and descriptions of the vegetation types are listed in Table 3.4-2 provided below.

Table 3.4-2: Summary of Land Cover Types in the Project Area

CWHR Habitat Type	Approximately Acres
Urban	108.0
Redwood	82.7
Annual/ Perennial Grassland	77.1
Freshwater Emergent Wetland	24.9
Montane Riparian	24.6
Coastal Scrub	9.1
Saline Emergent Wetland	3.4
NA (Open Water[1])	2.8
Closed-Cone Pine-Cypress	0.3
TOTAL	**332.9**

Note: All acreages are approximate and may not sum exactly due to rounding.

[1] The open water habitat type does not represent all potential USACE jurisdictional waters, as some jurisdictional features were mapped as vegetation based on aerial imagery. The wetland delineation, which will be submitted to the CPUC separately, contains a comprehensive map of USACE jurisdictional waters.

Redwood forest

Redwood forest covers approximately 30 percent of the project area, with redwoods (*Sequoia sempervirens*) and/or Sitka spruce (*Picea sitchensis*) forming a continuous overstory canopy with other interspersed conifers (e.g., grand fir [*Abies grandis*] and Douglas-fir [*Pseudotsuga menziesii*]). These stands often have an open and sparse mid-story; some sections of the project area had a low to moderate canopy cover of tanoak (*Lithocarpus densiflora*), Oregon ash (*Fraxinus latifolia*), and other hardwoods. The understory plant composition ranges from areas with well-established cover of native plant species to areas that are disturbed, often due to proximity to development.

Redwood forest in the project area was previously harvested for timber and is likely second- or third-growth forest. It is located throughout the project area from just north of Martin Slough in Pine Hills (an unincorporated community located 2.5 miles south of downtown Eureka) to the Humboldt Substation. Redwood forest in the northern portion of the project area is in timberlands managed by Green Diamond Resource Company, and in Humboldt County's McKay Community Forest managed by Humboldt County Public Works Department. Collectively, these areas make up the McKay Tract.

Annual/perennial grassland

Annual/perennial grassland makes up approximately 20 percent of the vegetation in the project area. Most grassland occurs in converted wetlands in or adjacent to low-lying floodplains. These seasonally mesic grasslands are comprised of non-native and native hydrophytic grasses including perennial rye grass (*Festuca perennis*), northern barley (*Hordeum brachyantherum* subsp. *brachyantherum*), reed canarygrass (*Phalaris arundinacea*), common velvet grass (*Holcus lanatus*), water foxtail (*Alopecurus geniculatus*), red fescue (*Festuca rubra),* bent grasses (*Agrostis* spp.), and manna grasses (*Glyceria* spp.); as well as hydrophytic forbs such as pennyroyal (*Mentha pulegium*), Pacific silverweed (*Potentilla anserina* subsp. *pacifica* [syn. *Argentina egedii*]), bird's-foot trefoil (*Lotus corniculatus*), bristly ox-tongue (*Helminthotheca echioides*), and various buttercups (*Ranunculus* spp.). Upland grasslands are typically dominated by non-native species such as sweet vernal grass (*Anthoxanthum odoratum*), cultivated oat (*Avena sativa*), and various bromes (*Bromus* spp.). Herbaceous plant associates in these upland areas are also predominantly non-native and include oxeye daisy (*Leucanthemum vulgare*), Queen Anne's lace (*Daucus carota*), English plantain (*Plantago lanceolata*), rough cat's ear (*Hypochaeris radicata*), cutleaf geranium (*Geranium dissectum*), English daisy (*Bellis perennis*), various clovers (*Trifolium* spp.), and common selfheal (*Prunella vulgaris*).

Montane riparian

Montane riparian vegetation occurs across less than approximately 10 percent of the project area along waterways with intermittent to perennial flow and includes both tree and shrub-dominated areas. Tree overstory is generally dominated by red alder (*Alnus rubra*) and includes stands of big-leaf maple (*Acer macrophyllum*), arroyo willow (*Salix lasiolepis*), and Pacific willow (*Salix lasiandra*). Plant associates include Oregon ash, Himalayan blackberry (*Rubus armeniacus*), California blackberry (*Rubus ursinus*), small-fruited bulrush (*Scirpus microcarpus*), yellow skunk cabbage (*Lysichiton americanus*), common horsetail (*Equisetum arvense*), and California wild grape (*Vitis californica*). Dense willow thickets make up most of the shrub-dominated montane riparian habitats and include shrub forms of Sitka willow (*Salix sitchensis*), arroyo willow, and coastal willow (*S. hookeriana*), along with Himalayan and California blackberries.

Freshwater emergent wetland

Freshwater emergent wetland occurs across less than approximately 10% of the project area where it is characterized by erect, rooted, herbaceous hydrophytes in semi-permanent and seasonally flooded palustrine wetlands. Plant associates include pale spikerush (*Eleocharis macrostachya*), rushes (*Juncus* spp.), parrot feather watermilfoil (*Myriophyllum aquaticum*), Pacific silverweed, American speedwell (*Veronica americana*), common horsetail, dock (*Rumex* spp.), sedges (*Carex* spp.), small-fruited bulrush, European bur-reed (*Sparganium emersum*), and broadleaf cattail (*Typha latifolia*). Details are provided in the jurisdictional wetland delineation completed for the project area (Stillwater Sciences 2019b), which will be provided separately to the CPUC.

Coastal Scrub

Coastal scrub generally occurs on coastal bluffs and dry exposed slopes on the northern California coast. Coastal scrub is patchily distributed across less than approximately 3 percent of the project area on abandoned railroad tracks, levees, southwest-facing steep slopes, and uplands adjacent to the saline emergent wetland habitat type. Common native shrub species documented include coyote brush (*Baccharis pilularis*), cascara (*Frangula purshiana*), wax myrtle (*Morella californica*), riverbank lupine (*Lupinus rivularis*), Nootka rose (*Rosa nutkana* subsp. *nutkana*), twinberry (*Lonicera involucrata*), and sword fern (*Polystichum munitum*), as well as the invasive French broom (*Genista monspessulana*) and Himalayan blackberry. Associated native herbaceous plant species include sea-watch (*Angelica lucida*), California figwort (*Scrophularia californica*), Queen Anne's lace, and fireweed (*Chamerion angustifolium* subsp. *circumvagum*); non-native associates include pampas grass (*Cortaderia jubata*), cultivated radish (*Raphanus sativus*), and teasel (*Dipsacus fullonum*).

Saline emergent wetlands

Saline emergent wetlands primarily occur in the far western portion of the project area, and make up less than 2% of the overall landcover type. This landcover type is dominated by Pacific pickleweed (*Salicornia pacifica* [syn. *Sarcocornia pacifica*]), along with other perennial halophytic plant species. Plant associates include salt grass (*Distichlis spicata*), various rushes, fat-hen (*Atriplex prostrata*), and slough sedge (*Carex obnupta*). Additional herbaceous species include seaside arrow-grass (*Triglochin maritima*), brass-buttons (*Cotula coronopifolia*), and tufted hair grass (*Deschampsia cespitosa*). Coyote brush and wax myrtle shrubs are scattered throughout. In addition, the highly invasive dense-flowered cordgrass (*Spartina densiflora*) was documented within this habitat type.

Closed-cone pine-cypress

The closed-cone pine-cypress habitat type is associated with one small 0.3-acre stand of Monterey cypress (*Hesperocyparis macrocarpa*) in the project area (less than 1 percent of the project area). Outside of the natural groves that exist only on the Monterey Peninsula, Monterey cypress is considered invasive along the California coast; naturalized populations can be found from Humboldt County south to Santa Barbara (CNPS 2018). This stand occurs adjacent to the developed area in the north end of the project area near Humboldt Substation. The understory is limited to low cover of herbaceous annuals due to dense leaf litter that limits establishment of perennial plant species.

Open water

The open water landcover largely consists of prominent and minor waterways that cross the project alignment. These include Buhne Slough, Elk River, Martin Slough, and Ryan Slough, shown in Figure 3.9-1: Existing Surface Waters and Floodplains. Unvegetated tributaries and drainage ditches may also be mapped as open water if they support perennial surface flow.

Buhne Slough

The project alignment crosses Buhne Slough at the far western end of the project area next to the Humboldt Bay Generating Station. Buhne Slough is a muted tidal channel that flows through a non-operational tide gate at the western end of the project area. It also receives rainfall runoff from the hills to the east. A portion of Buhne Slough was dredged to create the community of King Salmon’s Fisherman’s Channel and the Humboldt Bay Power Plant cooling water intake canal. The remainder of Buhne Slough was abandoned when the intake canal was dredged. The tide gate west of King Salmon Avenue was created to provide a connection to Humboldt Bay and maintain runoff drainage.

The Buhne Slough channel west of Highway 101 is approximately 13–16 feet wide and relatively shallow, with soft mud/clay substrate and an average bank height of approximately 1 foot. Salinity measured in October 2017 was similar to sea water, reflecting the direct connection to Humboldt Bay during incoming tidal conditions; however, water quality conditions could shift substantially with seasonal fluctuations in hydrological conditions (e.g., heavy rainfall runoff in winter months). Buhne Slough east of Highway 101 is connected via an open box culvert under Highway 101. The slough in this area flows through constructed ditches with soft mud/clay bed and bank substrates; the main channels to the west and south are approximately 6–13 feet wide. In October 2017, vegetation along the banks showed possible effects of saltwater influence (e.g., dead or dying cattails).

Elk River

The project alignment crosses the Elk River approximately 1.2 miles eastward along the alignment from the Humboldt Bay Generating Station. Elk River flows westward along the west side of the northern California Coast Range into Humboldt Bay south of Eureka. The Elk River watershed encompasses approximately 33,700 acres. The watershed contains two major forks, the North and South forks. The Elk River meanders across a well-defined floodplain in the lower half of the basin. Tributaries to the Elk River are deeply incised into the landscape with low-gradient mainstem channels that typically transition sharply to moderately steep headwater tributaries. Rural land use along the lower reaches of the mainstem and North and South forks is primarily pasture with adjacent residential areas. The major land use in the watershed is forest management; primarily under the ownership of Humboldt Redwood Company and the Headwaters Forest, which is managed by the U. S. Bureau of Land Management.

The small portion of Elk River within the project area is intertidal and has been leveed and diked to create and maintain valley bottomlands suitable for farming and ranching and, historically, to support logging activities. As a result, much of the pre-existing wetlands and coastal marsh habitat has been converted to farmlands.

Martin Slough

The project alignment crosses Martin Slough at three locations along the alignment. Martin Slough originates in upland areas in and adjacent to the City of Eureka and flows into Swain Slough, the lowest tributary to Elk River. In the Martin Slough watershed, land use is mixed and includes the following: residential, agricultural, timberlands, and municipal infrastructure. Martin Slough has a watershed area of approximately 5.4 square miles, and a natural channel length of over 10 miles with approximately 7.5 miles of potential salmonid fish habitat. However, existing tide gates partially block upstream salmonid migration. The lower portion of the watershed flows through low-gradient bottomland containing a golf course and pastureland. Many of the stream channels flow from gulches that contain mature second-growth redwood forests. The upper portions of the watershed are either in urban settings or are recently harvested timber lands slated for future residential areas. Martin Slough is a transition area between freshwater and tidal marsh and consists of a complex network of channels with diverse habitat types and vegetation that support a wide variety of fish and wildlife.

Ryan Slough

The project alignment crosses Ryan Slough east of the Redwood Acres Fairgrounds in northeast Eureka. Ryan Slough drains Ryan Creek and is a tributary to Freshwater Slough, prior to Freshwater Slough entering Humboldt Bay. The portion of Ryan Slough within the project area is tidally influenced, flows through grazing land, and is bordered by a thin strip of willow vegetation in the upper reach. The slough channel banks and bottom are primarily mud and clay intermixed with smaller amounts of gravel.

Wetlands and Aquatic Resources

The project area contains approximately 4.1 acres of potentially jurisdictional waters of the U.S. and approximately 90.0 acres of potentially jurisdictional adjacent wetlands. Of these, approximately 70.4 acres are within the coastal zone as described below. The results of the jurisdictional wetland delineation are summarized in the Wetland Delineation Report, which will be submitted to CPUC separately (Stillwater Sciences 2019b).

California Coastal Act Wetlands

Within in the coastal zone, the project area contains approximately 102.0 acres of wetlands. Of these, approximately 31.6 acres are one- or two-parameter wetlands (CCA wetlands), and approximately 70.4 acres are three-parameter wetlands (federally-jurisdictional wetlands). Locations of potential CCC-jurisdictional waters and wetlands are provided in the BRTR (Stillwater Sciences 2019a).

Sensitive Natural Communities

Results of 2016 botanical field surveys documented 12 sensitive natural communities within the project area: Sitka spruce forest, redwood forest, red fescue grassland, bigleaf maple forest, coastal dune and Sitka willow thickets, shining willow groves, Pacific silverweed marshes, slough sedge swards, small-fruited bulrush marsh, salt rush swales, coastal brambles, and pickleweed mats. These communities are described in greater detail in the BRTR (Stillwater Sciences 2019a).

Special-Status Species

This section describes special-status species that are likely to occur, have potential to occur, or are seasonally present in the project area.

Special-Status Plant Species and Sensitive Natural Communities

Special-status Plants

Table 3.4-3 summarizes the list of 14 special-status plant species considered to have a moderate to high potential to occur in the project area based on known range and habitat associations of the species. Of these, one species—Lyngbye's sedge (*Carex lyngbyei*)—had been previously documented within the project area (AMEC 2012, CDFW 2016). There are three records of historical occurrence of Lyngbye's sedge in the project area.

One special-status plant species, Lyngbye's sedge, was identified in the project area during comprehensive plant surveys conducted in 2016. No other special-status plant species, including those with previously documented occurrences, were found in the project area during the 2016 surveys.

Lyngbye's sedge is a perennial rhizomatous herb in the Cyperaceae family that has a CRPR listing of 2B.2 (plants rare, threatened, or endangered in California, but more common elsewhere; moderately threatened in California). It is limited to the North and Central Coast from 0 to 33 feet in elevation (Baldwin et al. 2012). Lyngbye's sedge occurs in brackish and freshwater marshes and swamps and blooms from April through August. Threats to species persistence include grazing, non-native plants, and habitat disturbance (CNPS 2016). Lyngbye's sedge has been previously documented in the project area (AMEC 2012; CDFW 2016).

Surveys of the project area conducted in 2016 documented Lyngbye's sedge along the banks of Martin Slough, Elk River, and Ryan Slough, which are all tidally influenced waterways. At all locations, this sedge formed dense monotypic stands; nearby plant associates include bird's-foot trefoil, common velvet grass, perennial rye grass, white clover (*Trifolium repens*), Pacific silverweed, California blackberry, salt grass, small-fruited bulrush, three-ribbed arrow-grass (*Triglochin striata*), and barleys (*Hordeum* spp.). All occurrences were previously documented (AMEC 2012, CDFW 2016). The Martin Slough occurrence was the largest population observed in the project area and was heavily grazed by cattle (Table 3, Figure 22, Appendix F). The Elk River occurrence has a population of approximately 700 plants. The Ryan Slough occurrence is located along the lower bank and extended within the active channel; water marks indicated that some individuals were partially or fully submerged during high tides.

Sensitive Natural Communities

Twelve special-status natural communities were documented within the project area during botanical field surveys: Sitka spruce forest, redwood forest, red fescue grassland, bigleaf maple forest, coastal dune and Sitka willow thickets, shining willow groves, Pacific silverweed marshes, slough sedge swards, small-fruited bulrush marsh, salt rush swales, coastal brambles, and pickleweed mats. Descriptions of these communities and maps of their distributions in the project area are provided in the BRTR, which will be provided separately to the CPUC (Stillwater Sciences 2019a).

Special Status Fish and Wildlife Species

Twenty-two species of special-status fish and wildlife may occur in the project area. These species are listed in Table 3.4-4 and described below. Though green sturgeon is unlikely to occur, it is included in the discussion because critical habitat for this species occurs in the project area. Additional detail regarding special-status fish and wildlife species that may occur in the project area is provided in the BRTR (Stillwater Sciences 2019a).

Pacific lamprey

Pacific lamprey, a California species of special concern, typically spawns from March through July depending on water temperatures and local conditions such as seasonal flow regimes (Kan 1975, Brumo et al. 2009, Gunckel et al. 2009). Pacific lampreys rear in freshwater from 4 to 10 years (Pletcher 1963, Moore and Mallatt 1980, van de Wetering 1998). Pacific lamprey are widely distributed in rivers throughout the Humboldt Bay watershed and are likely to occur in the project area in the intertidal areas of Ryan Slough and Elk River during upstream adult migration and juvenile out-migration. Pacific lamprey may occur in the project area year-round.

North American green sturgeon southern DPS

There are two distinct populations of green sturgeon in California—a southern distinct population segment (sDPS) and a northern distinct population segment (nDPS). The sDPS of green sturgeon is listed as federally threatened under the ESA (NMFS 2006). Green sturgeon from both distinct populations inhabit Humboldt Bay. Critical habitat for the sDPS of green sturgeon includes all tidally influenced areas of Humboldt Bay (including tributaries) up to the mean high-water elevation (NMFS 2009); this designation includes Elk River in the project area.

The sDPS of green sturgeon enters Humboldt Bay during the summer and early fall to forage but does not likely occur in the project area. While green sturgeon are known to inhabit Humboldt Bay north of the harbor entrance, this species is not likely to use watercourses and sloughs in the project area due to relatively small channel sizes and shallow conditions. Green sturgeon in Humboldt Bay are relatively large fish (subadults and adults) and generally prefer the Bay's entrance channel, North Bay, and deeper tidal channels (Pinnex 2008). This species is not known to spawn in Humboldt Bay tributaries because there has never been a recorded incident of a larval or juvenile green sturgeon captured in any downstream migrant trap in the Humboldt Bay area (Stillwater Sciences 2019a). Green sturgeon spawn in large rivers (such as the Klamath and Eel rivers) with relatively fast water, coarse substrate (e.g., cobbles and small boulders), and depths greater than nine feet; tributaries to the Humboldt Bay do not have the flow, depth, or substrate characteristics that sturgeon prefer, and the green sturgeon that inhabit Humboldt Bay are non-spawning fish.

Table 3.4-3: Special-Status Plant Species

Species Name	Listing Status[1]	Natural History	Blooming Period	Occurrence Potential
coastal marsh milk-vetch *Astragalus pycnostachyus* var. *pycnostachyus*	1B.2	Mesic coastal dunes, coastal scrub, coastal salt marshes and swamps, wetlands and stream sides; 0–30 meters (0–98 feet)	April–October	**Potential to Occur:** Coastal scrub, coastal salt marsh, wetlands and stream sides are present in the project area. One reported occurrence (2003) is approximately 1 mile from the project area.
Lyngbye's sedge *Carex lyngbyei*	2B.2	Brackish or freshwater marshes and swamps; 0–10 meters (0–33 feet)	April–August	**Present:** Observed in the project area along banks of brackish waters in 2016, during 2012 surveys, as well as numerous contemporary records in and adjacent to the project area (CDFW 2016).
northern meadow sedge *Carex praticola*	2B.2	Moist to wet meadows and seeps, coastal prairie, and north coastal coniferous forest; 0–3,200 meters (0–10,499 feet)	May–July	**Potential to Occur:** North coast conifer forest and wet meadow present in the project area; however, the one reported occurrence located near Stephen Hill logging camp/near Ryan Slough is from a 1915 collection (CDFW 2016).
Humboldt Bay owl's-clover *Castilleja ambigua* var. *humboldtiensis* (formerly *C. ambigua* subsp. *humboldtiensis*)	1B.2	Marshes and swamps; 0–10 feet	April–August	**Potential to Occur:** Salt marsh habitat is present in the project area. Reported populations less than 1 mile from project area along banks of Ryan Slough near confluence of Freshwater Slough and along Elk River/Swain Slough banks (CDFW 2016).
Oregon coast paintbrush *Castilleja litoralis* (formerly *C. affinis* subsp. *litoralis*)	2B.2	Coastal bluff scrub, coastal dunes, coastal scrub/sandy; 49–328 feet	June	**Potential to Occur:** Coastal scrub habitat is present in the project area. Two occurrences within 1 mile from the project area are based on 1918 and 1926 collections; however, one CNDDB record approximately 4 miles from the project area was recently observed (2014) (CDFW 2016).
Point Reyes bird's-beak *Chloropyron maritimum* subsp. *palustre*	1B.2	Marshes and swamps; 0–33 feet	June–October	**Potential to Occur:** Salt marsh habitat present in the project area. Two reported populations within one mile of the project area along saltmarsh habitat of Fisherman's Channel and Elk River Spit (CDFW 2016).

Table 3.4-3: Special-Status Plant Species

Species Name	Listing Status[1]	Natural History	Blooming Period	Occurrence Potential
minute pocket moss *Fissidens pauperculus*	1B.2	North coast coniferous forest with damp soil; 33–3,360 feet	n/a–moss	**Potential to Occur:** North coast coniferous forest in the project area and the nearest occurrence is approximately 2 miles from the project area.
marsh pea *Lathyrus palustris*	2B.2	Bogs and fens, marshes and swamps, coastal prairies, coastal scrub; 1–100 meters (3–328 feet)	March–August	**Potential to Occur:** Marsh and coastal scrub habitats are present within the project area; nearest reported occurrence is within 1 mile from the project area near the Elk River Slough (CDFW 2016).
western lily *Lilium occidentale*	FE/CE/1B.1	Marshes and swamps, bogs and fens, coastal scrub, and coastal prairie; edges of sphagnum bogs and forest openings along margins of ephemeral ponds and stream channels;7–600 feet	June–July	**Potential to Occur:** Marshes and coastal scrub habitats area present within the project area; several occurrences within 2 miles of project area. One reported population in Fields Landing.
ghost-pipe *Monotropa uniflora*	2B.2	Broadleaf upland forest, north coast coniferous forest; 33–1,804 feet	June–September	**Potential to Occur:** North coast coniferous forest in the project area and reported occurrence is within 1 mile of the project area near Redwood Acres Fairgrounds.
Howell's montia *Montia howellii*	2B.2	Meadows and seeps, north coast coniferous forest, mesic vernal pools, and roadsides; 0–2,395 feet	March–May	**Potential to Occur:** North coast conifer forest present in the project area, and nearest reported occurrence is within 1 mile of the project.
coast checkerbloom *Sidalcea oregana* subsp. *eximia*	1B.2	Meadows, wetland-riparian; 0–4,000 feet	June–August	**Potential to Occur:** Wetland riparian habitat present within the project area, nearest reported occurrence is 1 mile from the project and documented as occurring along ditches in the Elk River floodplain (CDFW 2016).
western sand-spurrey *Spergularia canadensis* var. *occidentalis*	2B.1	Coastal salt marshes and swamps; 0–19 feet	June–August	**Potential to Occur:** Coastal salt marsh habitat is present within the project area. Nearest population located along Freshwater Slough banks and within the South Spit.

Table 3.4-3: Special-Status Plant Species

Species Name	Listing Status[1]	Natural History	Blooming Period	Occurrence Potential
alpine marsh violet *Viola palustris*	2B.2	Coastal bogs and fens, coastal scrub; 0–492 feet	March–August	**Potential to Occur:** Coastal scrub habitat is present within the project area, but the nearest reported occurrence is based on collections from 1923 or earlier. The 2012 and 2016 surveys did not identify this species.

[1] Explanation of state and federal listing codes:

Federal listing codes:
-FE: Federally Endangered Species
-FT: Federally Threatened Species
California listing codes:
-CE: State-listed as Endangered

California Rare Plant Rank:
-1B.1: Rare, threatened or endangered in California and elsewhere; seriously threatened in California
-1B.2: Rare, threatened or endangered in California and elsewhere; fairly threatened in California
-2.B1: Rare, threatened or endangered in California, but more common elsewhere; seriously threatened in California
-2.B2: Rare, threatened or endangered in California, but more common elsewhere; moderately threatened in California

Table 3.4-4: Special-Status Fish and Wildlife Species

Species Name	**Listing Status[1]**	**Natural History**	**Occurrence Assessment**
		Fish	
Pacific lamprey (*Entosphenus tridentatus*)	SSC	Found in coastal streams primarily north of San Luis Obispo; prefers gravel-bottomed streams at the upstream end of riffle habitat	**Likely to Occur:** Adult migration and juvenile out-migration occur in Ryan Slough and Elk River; spawning documented in Ryan Creek and Elk River upstream of the project area.
North American green sturgeon, southern DPS (*Acipenser medirostris*)	FT/SOC/SSC	Pacific coast of North America from Mexico to the Bering Sea. Large mainstem rivers with cool water and cobble, clean sand, or bedrock for spawning. Sub-adult and adults forage in lower reaches of large rivers, estuaries, and the nearshore marine environment.	**Unlikely to Occur:** Not likely to use watercourses and sloughs within the project area due to relatively small channel sizes and shallow conditions, despite critical habitat present in the project area.
longfin smelt (*Spirnichus thaleichthys*)	FC/ST	Local populations in Humboldt Bay, Eel River estuary and Klamath River estuary. Adults in large bays, estuaries, and nearshore coastal areas; migrate into freshwater rivers to spawn; salinities of 15–30 ppt.	**Potential to Occur:** Suitable habitat in Elk River, Martin Slough, and Ryan Slough.
Coho salmon, southern Oregon/ northern California coast ESU (*Oncorhynchus kisutch*)	FT/CT	Spawn in coastal streams and large mainstem rivers (i.e., Klamath/Trinity rivers) in riffles and pool tails-outs and rear in pools $\geq$ 3 feet deep with overhead cover with high levels of oxygen and temperatures between 50–59ºF.	**Likely to Occur:** Migration and juvenile rearing habitat present in Elk River and Ryan Slough; juvenile rearing habitat present in Martin Slough.
chinook salmon, California coastal ESU (*Oncorhynchus tshawytscha*)	FT	Wild coastal, spring, and fall-run Chinook found in streams and rivers between Redwood Creek in Humboldt County to the north and the Russian River in Sonoma County to the south.	**Seasonally Present**: Adult migration and juvenile rearing habitat present in Elk River and Ryan Slough; juvenile rearing habitat present in Martin Slough.

Table 3.4-4: Special-Status Fish and Wildlife Species			
Species Name	**Listing Status[1]**	**Natural History**	**Occurrence Assessment**
steelhead, northern California Coast DPS (*Oncorhynchus mykiss*)	FT	Inhabits small coastal streams to large mainstem rivers with gravel-bottomed, fast-flowing habitat for spawning. However, habitat criteria for different life stages (spawning, fry rearing, juvenile rearing) can vary significantly.	**Likely to Occur**: Adult migration and juvenile rearing habitat present in Elk River, Martin Slough, and Ryan Slough
coastal cutthroat trout (*Oncorhynchus clarki clarki*)	SSC	Small, low-gradient coastal streams and estuaries from northern Oregon to the Eel River, California to the south. Shaded streams with water temperatures below 64°F and small gravel for spawning.	**Likely to Occur**: Adult migration and juvenile rearing habitat present in Elk River, Martin Slough, and Ryan Slough.
tidewater goby (*Eucyclogobius newberryi*)	FE/SSC	Coastal lagoons and the uppermost zone of brackish large estuaries; found in water less than 3 feet deep and salinities less than 12 ppt from Tillas Slough (mouth of the Smith River, Del Norte County) to Agua Hedionda Lagoon (northern San Diego County).	**Likely to Occur**: Previously found in or near Elk River, Martin Slough, and Ryan Slough.
Amphibians			
southern torrent salamander (*Rhyacotriton variegatus*)	SSC	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Seeps and small streams in coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Seeps and springs need to be relatively unembedded with fine sediment.	**Potential to Occur**: May occur in rocky seeps and springs in the project area.

Table 3.4-4: Special-Status Fish and Wildlife Species

Species Name	**Listing Status[1]**	**Natural History**	**Occurrence Assessment**
northern red-legged frog (*Rana aurora*)	SSC	Humid forests, woodlands, grasslands, and streamsides usually near dense cover. Generally near permanent water but can be found far from water in damp woods and meadows during non-breeding season.	**Present.** Numerous detections in or near the project area; observed by Stillwater Sciences in the project area near Buhne Slough and its tributaries between 2014-2017; observed in Martin Slough and its tributaries in 2012 (AMEC 2012).
Reptiles			
western pond turtle (*Emys marmorata*)	SSC	Ponds, marshes, rivers, streams, and irrigation ditches with abundant vegetation, and either rocky or muddy bottoms, in woodland forest and grasslands below 6,000-foot elevation. Basking sites are located on logs, rocks, cattail mats, and exposed banks and egg-laying sites are located on grassy open fields up to 1,640 feet from water. May enter brackish water or seawater (Nafis 2017).	**Likely to Occur:** Highly suitable aquatic habitat and confirmed sightings adjacent to the project area.
Birds			
white-tailed kite (*Elanus leucurus*)	FP	Yearlong resident in coastal and valley lowlands. Inhabits herbaceous and open areas of most habitats and often found in agricultural areas.	**Present:** Suitable nesting and foraging habitat present, frequent sightings throughout project area (CDFW 2016).
bald eagle (*Haliaeetus leucocephalus*)	FD/BGEPA/CE/ FP	Associated with large, old-growth or dominant live trees near ocean shore, lake margins, and rivers for both nesting and wintering.	**Potential to Occur**: Foraging habitat and marginal nesting habitat in project area; observations of flyovers are relatively common (eBird 2017).
northern harrier (*Circus cyaneus*)	SSC	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Permanent resident of coastal areas	**Present:** Commonly observed in project area (AMEC 2012, eBird 2017) and suitable nesting and foraging habitat present.

Table 3.4-4: Special-Status Fish and Wildlife Species

Species Name	Listing Status[1]	Natural History	Occurrence Assessment
American peregrine falcon (*Falco peregrinus anatum*)	FD/SD/FP	Inhabits wetlands, woodlands, cities, agricultural lands, and coastal areas with cliffs near nesting sites. Nests primarily in mountainous areas with cliffs and known to utilize tall man-made structures (e.g., bridges) that provide suitable ledges and broken top trees (rarely).	**Seasonally Present:** Observed in the project area, foraging only (AMEC 2012). Suitable nesting habitat is not present in the project area.
northern spotted owl (*Strix occidentalis caurina*)	FT/ST	Typically found in large, contiguous stands of mature and old-growth coniferous forest with dense multi-layered structure.	**Potential to Occur:** Species may forage in project area; Green Diamond Resource Company protocol-level survey results show no nesting within at least 0.5 miles of project area (CDFW 2016, Green Diamond Resource Company 2010–2017 unpublished survey data).
Vaux's swift (*Chaetura vauxi*)	SSC	Summer resident of northern California; nests in the Coast Ranges from Sonoma County north and very locally south to Santa Cruz County; also found in the Sierra Nevada and possibly in the Cascade Range. Associated with redwood and Douglas-fir habitats with large snags, especially forest with large basal hollows and chimney trees.	**Seasonally Present:** Nesting and foraging habitat in project area in redwood forest habitats; documented occurrences in project area (eBird 2017) and species observed during 2012 wildlife surveys (AMEC 2012).
olive-sided flycatcher (*Contopus cooperi*)	SSC	Inhabitats montane and coniferous forests (e.g., Douglas-fir, redwood, red fir, and lodgepole pine), often along edges and openings.	**Seasonally Present:** Documented in the project area in montane forest (AMEC 2012); may nest and/or forage in project area in summer.

Table 3.4-4: Special-Status Fish and Wildlife Species			
Species Name	**Listing Status[1]**	**Natural History**	**Occurrence Assessment**
willow flycatcher (*Empidonax traillii*)	SE	Typically breeds in wet meadows and montane riparian habitats (with a significant shrub component within or near a taller overstory) from 2,000-8,000 feet in elevation from Tulare County north, along the western side of the Sierra Nevada and Cascades. Common spring (mid-May to early June) and particularly fall (mid-August to early September) migrant in riparian habitats at lower elevations, including the north coast of California (Ralph and Hollinger 2003 and Rosseau and Ralph 2012).	**Potential to Occur:** Documented in the vicinity of the project area , most often during spring and/or fall migration (Ralph and Hollinger 2003, Rosseau and Ralph 2012, and eBird 2017); nesting unlikely due to lack of continuity of suitable riparian habitat.
yellow warbler (*Setophaga petechial*)	SSC	Breeds in riparian woodlands, montane riparian, coastal scrub, and redwood up to 8,000 feet. This species breeds throughout the north coast. In general, occupies riparian vegetation in close proximity to water along streams and in wet meadows and are found in willows (Salix spp.) and cottonwoods (*Populus* spp.).	**Potential to Occur:** Suitable breeding habitat present in the project area; documented occurrences in the vicinity of the project area (eBird 2017). May nest or forage in project area in summer.
Mammals			
Townsend's big-eared bat (*Corynorhinus townsendii*)	SSC	Found throughout California in all but subalpine and alpine habitats. Roosts in cavernous habitats, usually in tunnels, caves, buildings, mines, and basal hollows of trees, but also rock shelters, preferentially close to water.	**Potential to Occur:** Suitable foraging and roosting habitat is present in the project area and one CNDDB record approximately 1.8 miles from the project area (CDFW 2016).

Table 3.4-4: Special-Status Fish and Wildlife Species

Species Name	Listing Status[1]	Natural History	Occurrence Assessment
pallid bat (*Antrozous pallidus*)	SSC	Found throughout California. Roosts in rock crevices, outcrops, cliffs, mines, and caves; trees (underneath exfoliating bark of pine and oak) and in basal hollows; and a variety of vacant and occupied structures (e.g., bridges) or buildings.	**Potential to Occur:** Suitable foraging habitat throughout project area; roosting habitat is present in numerous trees and bridges.

[1] Explanation of state and federal listing codes:
Federal listing codes:
-BGEPA: Bald and Golden Eagle Protection Act
-FC: Federal Candidate Species
-FD: Federally Delisted
-FE: Federally Endangered Species
-FT: Federally Threatened Species
-SOC: Species of Concern (National Marine Fisheries Service)
California listing codes:
-CE: State-listed as Endangered
-CT: State-listed as Threatened
-FP: Fully Protected
-SC: State Candidate
-SD: State Delisted
-SSC: State Species of Special Concern

Longfin smelt

Longfin smelt were listed as state threatened under CESA in 2009 (CDFW 2018). Longfin smelt spawn in fresh water during the winter months (February through April). Adult and juvenile longfin smelt can be found in the open waters of estuaries. Suitable habitat for longfin smelt in the project area is present in Elk River, Martin Slough, and Ryan Slough. Spawning condition adults have been observed in Elk River and Freshwater Slough (near the confluence with Ryan Slough). Longfin smelt are year-round residents of Humboldt Bay and accordingly, may occur within the project area at any time during the year.

Coho salmon, southern Oregon/Northern California Coast ESU

The Southern Oregon/Northern California Coast evolutionary significant unit[2] (ESU) for coho salmon is listed as threatened under the ESA (NMFS 2005a) and listed as threatened under the CESA. Designated critical habitat includes all river reaches accessible to listed coho within their range, which includes major rivers, estuaries, and bays. Many smaller coastal rivers and streams in this region also provide essential estuarine habitat for coho salmon, but access may be constrained by seasonal fluctuations in water levels (NMFS 1999a). Critical habitat in the project area includes Ryan Slough, Martin Slough, Elk River, and any accessible tributaries. Coho salmon adults typically migrate upstream from October through December, and spawn from November through January.

Coho are known to use sloughs and streams in the project area. Adult migration and juvenile rearing occurs in the project area in Elk River and Ryan Slough, and Martin Slough is an important rearing area for juvenile coho (Wallace and Allen 2007). It is unlikely that juvenile coho salmon would move from non-natal watercourses to occupy Buhne Slough because Buhne Slough is relatively isolated from known spawning streams. Spawning within the project area is unlikely due to the lack of suitable spawning substrate in these sloughs. Adult coho are most likely to be present in the project area during upstream migration in October through December, and juveniles may be present year-round.

Chinook salmon, California coastal ESU

California coastal Chinook salmon were listed in 1999 as threatened under the ESA (NMFS 1999b). The California coastal Chinook salmon ESU extends from the Klamath River (exclusive) south to the Russian River (inclusive). Juvenile Chinook salmon are known to use Humboldt Bay for foraging and rearing prior to entering the ocean. Critical habitat for California coastal ESU Chinook salmon was designated in 2005 (NMFS 2005b) and includes Humboldt Bay up to the extent of inundation at extreme high water. Critical habitat also includes numerous tributaries to Humboldt Bay including Elk River and Salmon Creek, among others. In the project area, critical habitat for California coastal ESU Chinook salmon is in Elk River and Ryan Slough.

Chinook are known to use sloughs and streams in the project area. Adult migration occurs in the project area in Elk River and Ryan Slough, and juvenile rearing habitat is also present in these

[2] An evolutionarily significant unit (ESU) is a population of organisms that is considered distinct for purposes of conservation. This term can apply to a species, subspecies, geographic race, or population.

watercourses as well as Martin Slough. Spawning is unlikely within the project area due to the lack of suitable spawning substrate in these sloughs. Adult Chinook are most likely to be present in the project area during upstream migration in October through December, and juveniles are most likely to be present during outmigration and early estuarine rearing from approximately February through July.

Steelhead, northern California Coast DPS

The Northern California Coast steelhead DPS was listed as federally threatened in 2006 under the ESA (NMFS 2006). Humboldt Bay has been designated as critical habitat up to the extent of extreme high water. Critical habitat also includes numerous tributaries to Humboldt Bay including Elk River and Salmon Creek, among others. Designated critical habitat for northern California Coast steelhead DPS in the project area includes Elk River, Martin Slough, and Ryan Slough.

In the project area, suitable habitat for steelhead adult migration and juvenile rearing is present in Elk River, Martin Slough, and Ryan Slough. Juvenile steelhead are known to use Humboldt Bay for foraging and rearing prior to entering the ocean. Spawning is unlikely within the project area due to the lack of suitable spawning substrate in these sloughs. Adult steelhead are most likely to be present in the project area during upstream migration in October through February, and juveniles may be present in the project area year-round.

Coastal cutthroat trout

Coastal cutthroat trout are a California species of special concern (Moyle et al 2015). Sea-run cutthroat have been documented in most of the tributaries to Humboldt Bay, including Elk River, Martin Slough, and Ryan sloughs. Suitable habitat for coastal cutthroat trout adult migration and juvenile rearing is present within the project area in Elk River, Ryan Slough, and Martin Slough. Coastal cutthroat trout can potentially be present in these waterbodies in the project area year-around.

Tidewater goby

The tidewater goby is federally listed as endangered (USFWS 1994) and is a California species of special concern. Critical habitat for tidewater goby was refined in 2013 and includes portions of the lower Elk River and Martin Slough (USFWS 2013) outside of the project area. The Tidewater goby is likely to occur in the project area in Elk River, Martin Slough, and Ryan Slough because there are several documented occurrences of tidewater goby in these waterways. Sixty tidewater gobies were found in Elk River during sampling for genetic studies in 2006 (McCraney et al. 2010), and one tidewater goby was found in Elk River upstream of the project area in 2010 (Chamberlain 2011). There was one goby observation in Martin Slough approximately 0.4 miles upstream of the project area (Hellmair and Kinziger 2014). Because tidewater gobies have been observed in Freshwater Slough upstream of the confluence with Ryan Slough in 2006 (CDFW 2016), they likely are also present in Ryan Slough. Surveys conducted in 2007 within Buhne Slough and an adjacent unnamed slough did not document presence of tidewater goby (Stillwater Sciences 2007; USFWS 2014).

Southern torrent salamander

Southern torrent salamander is a California species of special concern. Southern torrent salamanders are found in rocky headwater streams in mesic late-successional forest or nearby riparian forests, though the species may be found in younger stage forests in coastal northern California (Welsh and Lind 1996; Jones et al. 2005), presumably due to marine-influenced temperature control. Species in the genus *Rhyacotriton* are the most drought-intolerant species of salamander known and rely heavily on moist environments. Reproduction likely occurs along the shallow margins of streams, springs, and seeps (Jones et al. 2005). Little is known about southern torrent salamander egg mass deposition habitat since there have been only 2 egg clutches described. Both observed egg masses were attached to the underside of boulders, mid-channel in shallow, cold streams (Karraker et al. 2005). Larvae generally occur in cold (44–59°F), low-velocity flows over loose, coarse rock or rubble substrates with low sedimentation (Welsh and Lind 1996). Adults are usually found in contact with cold water, though they may occasionally be found in moist upland areas (Jones et al. 2005).

Southern torrent salamanders may occur in the project area in rocky streams, seeps, or springs within redwood or montane riparian habitats. In 2002, the species was documented about 3.5 miles northeast of the project area at a small road-side seep in second-growth redwood forest, and in 2013, one individual was captured approximately 3.3 miles from the project area in Eureka (CDFW 2016).

Northern red-legged frog

Northern red-legged frog is a California species of special concern. Northern red-legged frogs utilize a variety of habitats throughout their various life stages. Aquatic sites such as coastal lagoons, pools, marshes, ponds, or backwater areas are used for breeding. Deep pools are a particularly important breeding habitat feature as they allow frogs to evade predation. Other sources of cover include emergent vegetation, undercut banks, and root-wads. Upland habitats such as open grasslands with seeps and springs may be used for over-summering and for foraging. In northwestern California, northern red-legged frogs have been observed in dense understory vegetation such as ferns and sedges in streamside flats within stands of redwoods. Breeding for northern red-legged frogs generally occurs in late winter through early spring, typically when water temperatures exceed 43–46°F (Lannoo 2005). Eggs hatch in the spring (March–April) and tadpoles metamorphose in June or July (Lannoo 2005).

Northern red-legged frogs have been documented throughout the project area and have the potential to occur in montane riparian, freshwater emergent upland, and saline emergent wetlands, as well as in redwoods or grasslands where there are streams or seeps and associated upland habitats. Several adult northern red-legged frogs were observed in the project area near Buhne Slough and its tributaries during monitoring and surveys for other projects between 2014–2017, and breeding was documented in aquatic habitat on the Eureka municipal golf course near Martin Slough in 2010 (CDFW 2016). Other sightings have been made in and near Martin Slough and Ryan Slough (AMEC 2012).

Western pond turtle

Western pond turtle is a California species of special concern. Western pond turtles inhabit fresh or brackish water characterized by areas of deep water, low velocities, moderate amounts of riparian vegetation, warm water and/or ample basking sites, and underwater cover elements, such as large woody debris and rocks (Jennings and Hayes 1994). Hatchlings spend much of their time feeding in shallow water with dense submerged or short emergent vegetation (Jennings and Hayes 1994). Although primarily an aquatic reptile, western pond turtles may utilize upland habitats (typically within 0.3 miles of aquatic habitats) for overwintering, nesting, and basking (Holland 1994). Western pond turtle eggs are typically laid in June and July, though they may be laid throughout the year (Holland 1994, Reese 1996). Egg-laying sites vary from sandy shoreline to forest soil types, though are generally located in grassy meadows, away from trees and shrubs (Holland 1994), with canopy cover commonly less than about 10 percent (Reese 1996). Young hatch in late fall or overwinter in the nest and emerge in early spring.

Suitable western pond turtle aquatic habitat occurs in Buhne Slough, Elk River, Martin Slough, and Ryan Slough. This species has been documented in Martin Slough north of the project area, and along Freshwater Creek approximately 2 miles east of the project area (CDFW 2016).

<u>White-tailed kite</u>

White-tailed kite is a state fully protected species. White-tailed kites are associated with un-grazed grasslands, agricultural fields, wetlands, and meadows, as these habitats support their prey of small mammals. Groves of trees are required for perching and nesting, and roost sites are typically small stands of trees, though kites do not seem to associate with particular tree species (Dunk 1995). White-tailed kites breed from February through October, although peak breeding occurs from May through August (Zeiner et al. 1990a).

White-tailed kite is a common resident and breeder throughout Humboldt County and has been documented throughout the project area (CDFW 2016; eBird 2017), including observations during 2012 wildlife surveys (AMEC 2012). This species may nest in groves of trees associated with montane riparian forest or redwoods, and forage in nearby grasslands.

<u>Bald eagle</u>

Bald eagle is federally delisted, protected by the federal Bald and Golden Eagle Protection Act, state-listed as endangered, and state fully protected. This species is a year-round resident and uncommon winter migrant in California (Zeiner et al. 1990a). Bald eagles typically breed from March through August near coastal areas, rivers, lakes, and reservoirs with forested shorelines or cliffs in northern California (Jackman and Jenkins 2004). Bald eagles winter throughout most of California in lower elevations, with large concentrations in the Klamath Basin (Zeiner et al. 1990a). Wintering bald eagles are associated with open water habitats for foraging. Bald eagles forage and scavenge within large bodies of water containing abundant fish, such as estuaries, coastal waters, rivers, large lakes, and reservoirs. High snags, trees, and open rocky slopes provide hunting perches (Call 1978); open, easily approached perches and feeding areas are preferred.

In the project area, relatively large waterbodies such as the Elk River provide suitable foraging habitat. While bald eagle observations near the project area are common (eBird 2017), the potential for nesting in or near the project area is relatively low. There is a lack of tall nesting trees near large waterbodies suitable for foraging. The closest documented nest was observed in 2005, approximately three miles south of the project area (CDFW 2016).

Northern harrier

Northern harrier is a California species of special concern. Northern harrier is closely associated with meadows, marshes, and wetlands, and other suitable habitats include grasslands, ungrazed or lightly grazed pastures, and grain fields (Davis and Niemela 2008). These types of habitat support their prey, as northern harriers feed primarily on voles or other small mammals (MacWhirter et al.1996). Northern harriers nest on the ground in shrubby vegetation, usually along the edge of marshes. Nests are constructed of larger plants (e.g., willows, cattails) at the base with grasses and sedges lining the interior. Northern harrier is a highly territorial species that breeds from April through September, with peak breeding during June and July (Zeiner et al. 1990a).

Northern harrier were observed in the project area during 2012 wildlife surveys (AMEC 2012). There is suitable nesting and foraging habitat, especially in the area around Buhne Slough, but also near Martin Slough and Ryan Slough.

American peregrine falcon

American peregrine falcon is a state fully protected species. During the winter, the American peregrine falcon has been found throughout the Central Valley (Zeiner et al. 1990a). This species uses a variety of open habitats including wetlands, woodlands, cities, agricultural lands, and coastal areas (Gertsch et al. 1994); riparian habitat and wetlands are particularly important for foraging and nesting often occurs in proximity to these habitats (Zeiner et al. 1990a). American peregrine falcons typically nest in open settings with unobstructed views and open access, often near water (e.g., wetlands, rivers, coastal areas). Nests are usually made in a depression or scrape on a high cliff ledge, but are also found in dunes, human-made structures, and occasionally within abandoned raptor nests in large, predominant snags or trees (Zeiner et al. 1990a, White et al. 2002). Birds in urban environments have been observed nesting on city buildings and bridges (White et al. 2002). American peregrine falcons hunt prey in a variety of open habitat types such as wetlands, estuaries, mudflats, marshes, meadows, lakes, and rivers (Porter et al. 1973).

The project area has suitable foraging habitat for peregrine falcon, especially along emergent wetlands and grasslands around the western end of the project area. However, there is no nesting habitat in the project area (e.g., prominent cliffs or tall buildings). This species was observed foraging in the project area during 2012 wildlife surveys (AMEC 2012).

Northern spotted owl

The northern spotted owl is federally listed as threatened and is state-listed as threatened. Northern spotted owls are uncommon year-round residents in the northern California coastal ranges from Marin County north, as well as within the Cascade Range in northern California, southeast to the Pit River in Shasta County below 7,600 feet (Harris 1993, Gutiérrez et al. 1995, USFWS 2010b).

Northern spotted owls are typically associated with complex mature or old-growth stands dominated by conifers, particularly redwoods with hardwood understories (Pious 1994, USFWS 2011). Roosting sites are characterized by dense canopy cover dominated by large-diameter trees (i.e., greater than 30-inch diameter at breast height), multiple canopy layers, and northfacing slopes, often in cool shady areas (Gutiérrez et al. 1995, Courtney et al. 2004). Nests tend to be found in tree or snag cavities, on platforms (e.g., abandoned raptor or raven nests, squirrel nests, mistletoe brooms, or debris accumulations), or on broken-top snags (Zeiner et al. 1990a). In late February or early March, pairs begin roosting in cavities, the tops of broken trees, or abandoned nests; nesting is followed by peak breeding in April and May (Zeiner et al. 1990a, Gutiérrez et al. 1995, Courtney et al. 2004).

Green Diamond Resource Company conducts annual monitoring for northern spotted owls, including in the McKay Tract. Surveys are conducted to determine the location of activity centers, document any new northern spotted owl occurrences, and night call surveys are performed to monitor historically occupied sites for current activity. An activity center represents the central location for northern spotted owl use, typically identified by a nest site, breeding season roost site, or an area of concentrated detections.

Northern spotted owl may forage in the project area but will not likely nest there. Suitable foraging habitat for northern spotted owl in the project area is present in contiguous areas of redwood forest, primarily throughout the McKay Tract. There are five northern spotted owl activity centers within 2 miles of the project area, the closest of which is just under 1 mile away (CDFW 2016; Green Diamond Resource Company 2010–2017 unpublished survey data). Of several owl observations associated with these activity centers, there has only been one confirmed nesting attempt since 2014, associated with an activity center approximately 2 miles outside the project area.

Vaux’s swift

Vaux’s swifts are a California species of special concern. The Vaux’s swifts are migrant and summer residents in California. Along the northern California coast, Vaux’s swifts prefer nesting in cavities and burned-out tree hollows in coniferous forests, often in old-growth redwood and, less often, in Douglas fir forests (Zeiner et al. 1990a; Hunter 2008). Vaux’s swifts have been very occasionally documented nesting in man-made structures in urban areas, such as chimneys or cracks in highway bridges (Sterling and Paton 1996; Hunter 2008). During migration, large roost trees and chimneys are important for Vaux’s swifts to avoid exposure and conserve body heat (Bull and Collins 2007). Birds forage above the forest canopy, in forest openings such as burn areas, and above streams and rivers (Zeiner et al. 1990a; Bull and Collins 2007).

Numerous sightings of Vaux’s swift have been documented in the vicinity of the project area (eBird 2017), including an observation in the project during 2012 wildlife surveys (AMEC 2012). Suitable foraging and nesting habitat in the project area includes redwood forest associated with the McKay Tract.

Olive-sided flycatcher

Olive-sided flycatcher is a California species of special concern. This species is a migrant, summer resident. Olive-sided flycatcher primarily occur in advanced successional coniferous forests with open canopies, near forest edges or forest openings (e.g., meadows, rivers, harvest units), and with abundant perches (Zeiner et al. 1990a; Altman and Sallabanks 2000;

CalPIF 2002; Widdowson 2008). The birds prefer nesting areas near water bodies, potentially due to increased insect abundance in these areas (Altman and Sallabanks 2000).

The olive-sided flycatcher may forage and nest in forested sections of the project area including montane riparian and redwood. There are several documented occurrences of olive-sided flycatcher in the vicinity of the project area (eBird 2017). The species has also been observed exhibiting territorial behavior (i.e., possibly nesting) during the 2012 wildlife surveys in the edge of montane riparian habitat in the middle-western end of the project area (AMEC 2012).

<u>Willow flycatcher</u>

Willow flycatcher is state-listed as endangered. Willow flycatchers require dense riparian shrubland, often thickets of willows or alder, near permanent standing water for foraging and nesting. Deciduous shrubs and small trees at least 6.6 feet tall are required for nesting (Craig and Williams 1998); however, areas with dense upper-story tree cover are not suitable. Water is always present in willow flycatcher territories in California (Sedgwick 2000). Willow flycatchers winter in Mexico and Central America and are late spring migrants (typically mid-May to mid-June) to breeding grounds in North America (Craig and Williams 1998). Although willow flycatcher historically nested throughout California wherever suitable habitat occurred (Grinnell and Miller 1944), currently the species typically breeds in wet meadow and montane riparian habitats, at elevations of 2,000–8,000 feet, primarily in the Sierra Nevada and Cascade ranges (Craig and Williams 1998, Sedgwick 2000). Willow flycatcher does occasionally occur in riparian areas at lower elevations, including the north coast of California, primarily as a migrant (Hunter et al. 2005; Ralph and Hollinger 2003; Rosseau and Ralph 2012; and eBird 2017).

Documented occurrences of breeding willow flycatchers in Humboldt County are rare. The closest confirmed nesting occurrence is located over 40 miles north of the project area (Hunter et al. 2005).

Habitat suitable for willow flycatcher foraging and nesting in the project area is in montane riparian habitat, particularly areas with a significant component of alder and willow such as along the Elk River, Martin Slough, tributaries to Ryan Creek in the McKay Tract and between Redwood Acres Fairgrounds, and Ryan Slough. While the project area is part of this species' historical range, current documented occurrences are uncommon. There is a very low potential for breeding in the project area due to lack of contiguity of riparian habitat suitable for nesting in the project area and the scarcity of recent documented breeding occurrences in the region. However, willow flycatchers occasionally occur as migrants along the northern coast of California in late spring and more frequently in fall (Ralph and Hollinger 2003; Rosseau and Ralph 2012; eBird 2017). Documented occurrences in this region of California from June (eBird 2017) are likely those of late migrants traveling inland, since this species often migrates late in the season.

<u>Yellow warbler</u>

Yellow warbler, a California species of special concern, is a summer resident that breeds throughout much of California, except the Central Valley, southern Californian deserts, and high Sierra Nevada (Zeiner et al. 1990a; Heath 1998, 2008). The preferred habitat of yellow warbler includes open canopy or deciduous riparian vegetation, often along streams or wet meadows (Heath 2008). This species frequently nests in small willows and alders, and is also associated with cottonwoods, Oregon ash, and other riparian shrubs and trees, depending upon the geographic region (Zeiner et al. 1990a; Heath 2008). This species also occasionally nests in montane chaparral in open coniferous forests (Heath 2008). Breeding occurs from mid-April through early August, with peak activity in June (Zeiner et al. 1990a). Yellow warblers nest two to 16 feet above ground, at the bases of branches (branch forks) in small deciduous trees and shrubs, often in willow thickets (Zeiner et al. 1990a, Lowther et al. 1999). Birds forage for insects within the shrub and tree canopy, occasionally feeding on the wing or eating fruit (Zeiner et al. 1990a, Lowther et al. 1999).

There are many documented occurrences of yellow warbler during the breeding season in the vicinity of the project area (eBird 2017) and suitable foraging and nesting habitat for yellow warbler in the project area is located in montane riparian habitat, particularly areas with a significant component of alder and willow, such as along the Elk River, Martin Slough, tributaries to Ryan Creek in the McKay Tract and between Redwood Acres Fairgrounds and Ryan Slough.

<u>Other migratory birds or raptors</u>

In addition to the species listed previously, other special-status or non-special-status migratory bird species and/or raptors could establish nests in suitable habitat in or near the project area, primarily in trees, shrubs, poles, towers, grasslands, buildings, or other nesting structures.

<u>Townsend's big-eared bat</u>

Townsend's big-eared bat is a California species of special concern. This species occurs throughout California and is associated with caves and structures in a variety of habitats from deserts to coastal scrub to montane forests. This cavity-dwelling species roosts and hibernates in caves (commonly limestone or basaltic lava), mines, buildings, bridges (with a cave-like understructure), rock crevices, tunnels, basal hollows in large trees, and cave-like attics (Pierson and Fellers 1998, Pierson and Rainey 2007; Pierson et al. 2001; Sherwin et al. 2000; Sherwin and Piaggio 2005). Townsend's big-eared bats breed in both transitory migratory sites and hibernacula between September or October and February (CDFW 2013). The maternity season extends from March 1 through October 31, with colonies forming between March and June and breaking up by September or October (CDFW 2013).

Potential habitat within the project area with the highest potential for roosting Townsend's big-eared bat consists of redwood forest (e.g., in basal hollows), and/or in barns, old buildings, and bridges. Redwood forest is interspersed throughout the project area but is most common in the northern/eastern portion of the project area (e.g., McKay Tract). There is one CNDDB record approximately 1.8 miles from the project area (CDFW 2016).

<u>Pallid bat</u>

Pallid bat is a California species of special concern that occurs year-round in California. Pallid bats are associated with a variety of habitats from desert to coastal regions. At low- to mid-elevations, pallid bats are particularly associated with oak habitat (oak savannah, black oak, and oak grasslands) (Pierson and Rainey 2002). In natural settings, day and night roosts are found in rock crevices and cliffs, but can also be found in caves and trees (underneath exfoliating bark of pine and oak and in hollows) (Sherwin and Rambaldini 2005; Pierson et al. 2001). In more urban settings (e.g., Central Valley and western Sierran foothills), day and night roosts are frequently associated with human structures such as abandoned buildings, old mine workings, and bridges (Sherwin and Rambaldini 2005; Pierson et al. 2001). Overwintering roosts require relatively cool and stable temperatures out of direct sun light.

Pallid bats may forage in all habitat types in the project area. Suitable roosting habitat is present in forest stands including montane riparian and redwood, and in buildings and bridges throughout the project area. No tunnels, caves, or mines are known to occur in the project area.

Habitat Conservation Plans

The eastern portion of the existing power line crosses through the Green Diamond Resource Company's Northern Spotted Owl Habitat Conservation Plan (HCP) area, though construction of the project is not covered by this HCP. There are currently no other Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) within the project area.

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. These APMs may be refined to be consistent with measures subsequently approved in resource agency permits related to the project; the resource agency permit requirements shall supersede any PEA APMs.

> ***APM BIO-1: Development and implementation of a Worker Environmental Awareness Program.*** A qualified biologist will conduct an environmental awareness program for all on-site construction personnel before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers shall be informed of the presence, life history, and habitat requirements of all special-status species that may be affected in the project area, and about state and federal laws protecting nesting birds, wetlands, and other water resources. An

educational brochure will be produced for construction crews working on the project. Color photos of special-status species will be included, as well as a discussion of relevant APMs and specific avoidance or minimization measures for special-status species and habitats.

APM BIO-2: General Resource Protection Measures. This APM consists of the following components:

- ***Litter and trash management.*** All food scraps, wrappers, food containers, cans, bottles, and other trash will be removed from the site daily.
- ***Parking.*** Vehicles and equipment will be parked on pavement, existing roads, developed areas, or approved construction work areas.
- ***Route and speed limitations.*** Vehicles will be confined to established roadways or previously disturbed roadways and pre-approved access roads, overland routes, and construction work areas. Access routes and temporary construction work areas will be limited to the minimum necessary to achieve the project goals. Vehicular speeds will be limited to 15 miles per hour on unpaved roads.
- ***Maintenance and refueling.*** All equipment will be maintained to avoid leaks of automotive fluids such as fuels, solvents, or oils. All refueling and maintenance of vehicles and other construction equipment will be restricted to designated staging areas located at least 100 feet from any down-gradient aquatic habitat, unless otherwise isolated from habitat by secondary containment. Proper spill prevention and cleanup equipment will be maintained in all refueling areas.
- ***Hazardous materials spills***. Emergency spill response and cleanup kits will be readily available for immediate containment and cleanup of an accidental spill. Construction crews will be trained in safe handling of hazardous materials and cleanup responsibilities. Any spills into aquatic habitat will be reported to the CPUC, USACE, State Water Resources Control Board, and the California Coastal Commission (if within the coastal zone) within 24 hours.
- ***Pets and firearms.*** No pets, hunting, open fires (such as barbecues), or firearms will be permitted at the project site.
- ***Reporting and communication.*** The PG&E project biologist will be responsible for immediately reporting any capture and relocation, or inadvertent harm, entrapment, or death of a federally or state listed species under ESA or CESA, respectively to the USFWS and CDFW, respectively.
- ***Restore temporarily disturbed habitats***. All habitat areas for special-status species that are temporarily disturbed as a result of project activities will be restored upon completion of construction. Disturbed areas will be restored to pre-project conditions in coordination with land owners and in compliance with resource agency permit conditions. Tidal marsh areas will be allowed to passively restore or as otherwise required by resource agency permit requirements.

- ***Erosion control materials.*** Only tightly woven netting or similar material will be used for all geo-synthetic erosion control materials such as coir rolls and geo-textiles. No plastic monofilament matting will be used.
- ***Minimize grading and vegetation removal along access roads and construction work areas, to the extent feasible.*** PG&E will only trim, clear, or remove vegetation as necessary to establish the access routes and allow equipment use. Trees will be directionally felled away from sensitive biological resource areas, and if that is not possible, removed in sections. Damage to adjacent trees will be avoided to the extent possible.
- ***Weed management.*** Vehicles and construction equipment will be cleaned of mud and dirt on site at a PG&E wash facility or otherwise approved wash-down location as needed to minimize transport of weed plant parts or seed. Vehicles will also be cleaned at the completion of the project or when off-road use for that vehicle has been completed.

APM BIO-3: Conduct Preconstruction Survey(s) for Special-Status Species and Sensitive Biological Resource Areas. A qualified biologist will conduct pre-construction survey(s) in areas identified in the BRTR as having habitat for special-status species and sensitive biological resource areas, either during the appropriate phenological period for plants or within 7 days prior to construction activities for wildlife. If any special-status species is encountered during the pre-construction survey(s), the PG&E project biologist will be contacted immediately. If any special-status species are found nearby but outside the construction work area, they will not be disturbed. If recommended by the biologist, a temporary silt-fence barrier may be installed to prevent special-status species from entering the construction work area(s) during project activities.

APM BIO-4: Identification and Marking of Sensitive Biological Resource Areas. Sensitive biological resources (e.g., special-status plants, wetlands) in or adjacent to construction work areas identified during the pre-construction surveys, will be clearly marked in the field and on project maps. Such areas will be avoided during construction to the extent practicable.

APM BIO-5: Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas. A qualified biologist will be onsite during ground-disturbing construction activities in sensitive biological resource areas identified in APM BIO-4 above unless the area has been protected by barrier fencing to protect sensitive biological resources and previously cleared by the qualified biologist. The qualified biologist will ensure implementation and compliance with all avoidance and mitigation measures and have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.

***APM BIO-6: Nesting Bird Impact Avoidance and Protection*.** If construction 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 C of the PEA and will occur within 15 days prior to the start of construction to determine nesting status by a qualified 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 construction 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 C 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 C. 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. At the discretion of the biologist, vegetation removal by hand may be allowed within nest buffers or in areas of potential nesting activity. Inactive nests may be removed in accordance with PG&E's approved avian permits. The biologist will have authority to order the cessation of nearby project activities if nesting pairs exhibit signs of disturbance.

APM BIO-7: Special-Status Plant Impact Avoidance and Protection. Prior to the start of construction and in conjunction with APM-BIO 3, a qualified botanist will resurvey mapped populations of Lyngbye's sedge and flag or otherwise mark (e.g., stake, fence) all special-status plant populations documented adjacent to construction work areas for avoidance as feasible. After project activities have been completed at a given worksite, all staking, fencing, or flagging will be removed.

If complete avoidance of special-status plant populations is not possible, PG&E will implement the following:

- PG&E will limit driving across special-status plant populations to the greatest extent feasible. Where direct disturbance to topsoil (except excavation) is unavoidable, matting and other protection measures (e.g., rig mats, timber roads, plating, or tracked vehicles) will be used to minimize soil compaction or destruction of underground plant structures. Matting and other protection measures will be approved by a qualified biologist before work begins at that location.

- For any unavoidable excavation required within Lyngbye's sedge populations, the upper 6 inches of topsoil containing the plant's rhizomes will be stockpiled. PG&E will use the stockpiled topsoil to restore the area after temporary construction has been completed.

APM BIO-8: Special-Status Amphibian and Reptile Impact Avoidance and Protection. During wet weather or the rainy season, all open holes, pits, and trenches will be protected to ensure that frogs, salamanders, and/or turtles do not become entrapped. Protective fencing, coverings, or ramps will be installed to either prevent wildlife from falling into excavations or to allow for escape. At the end of each work day, steep-walled holes or trenches more than six inches deep will be covered or provided with one or more escape ramps and/or fenced. Open excavations will be inspected each morning, prior to the start of construction activities, to ensure that no wildlife are trapped. Construction personnel will also check underneath vehicles and within materials to be moved (i.e., tires, tracks, pipes, etc.) for the presence of frogs, salamanders, and/or turtles when parked or placed near suitable aquatic or upland dispersal habitat. Any species found will be captured and relocated to an approved location as approved by the resource agencies, if required, and in compliance with any regulatory permits issued for the project.

APM BIO-9: Implement General Protection Measures for Wetlands and Other Waters. PG&E will implement the following general measures to minimize or avoid impacts on wetlands and other waters:

- Avoid wetlands and other waters to the extent feasible.
- Construction activities in wetlands will generally occur during the dry season (May 1 to October 15) to the extent feasible.
- Ground-based construction activities in tidally influenced wetlands near Buhne Slough will not occur during extreme high tide events that would flood the construction work areas.
- Where travel across seasonal wetlands is necessary, it will occur during dry conditions, when feasible, to avoid soil compaction or mixing. If travel is required during wet or moist conditions, temporary matting or other protection measure (e.g., rig mats, timber roads, plating, or tracked vehicles [preferably rubber tracked]) will be used to avoid soil compaction or mixing. Matting and other protection measures will be approved by a qualified biologist before construction work at that location begins.
- Conduct all fueling of vehicles at least 100 feet from wetlands and other water bodies unless approved by a qualified biologist.
- Set construction work areas back at least 50 feet from streams, creeks, or other water bodies unless approved by a qualified biologist.
- Implement a Storm Water Pollution Prevention Plan (SWPPP) to minimize construction-related erosion and sediments from entering nearby waterways (see APM WQ-1).

APM BIO-10: Restore Temporarily Impacted Wetlands and Other Waters. All wetlands and other waters that are temporarily disturbed as a result of project activities will be restored following completion of construction in accordance with any applicable resource agency permits.

APM BIO-11: Compensate for Permanent Impacts on Wetlands and Other Waters in Accordance with Project Permits. PG&E will compensate for permanent impacts on wetlands by providing at least 1:1 mitigation for any unavoidable permanent impacts to wetlands and waters within the coastal zone and in compliance with resource agency permit requirements. Final compensation ratios for impacts to wetlands and waters throughout the project alignment will be based on site-specific information and finalized through discussions with the U.S. Army Corps of Engineers and the North Coast Regional Water Quality Control Board as part of the permitting processes for the project.

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 operations and maintenance phase.

The impact analysis is based on project information provided in Chapter 2.0, Project Description, and on information gathered during reconnaissance field surveys and the wetland delineation. As described in Chapter 2.0, Project Description, the proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system.

Contouring, grading, and rocking may be required to create stable and level construction work areas. Construction work areas include staging areas, pole work areas, helicopter landing zones, and access roads. Vegetation clearance and matting (or plating) of drainage crossings may be required for vehicle access. Following construction, existing access routes will not be re-vegetated; they will continue to be used for operations and maintenance. Temporary construction work areas and staging areas will be restored in coordination with landowners and in compliance with resource agency permit conditions, and will include applying a native seed mix or other seed mix in areas of ground disturbance. Temporary overland access routes will be allowed to return to the natural state. For the impact analysis, the location and height of the existing structures are considered part of the existing baseline conditions.

The operations and maintenance activities required for the reconductored power lines will not change from those currently required for the existing system; thus, no operation-related impacts on biological resources will occur. Furthermore, a total of 14 wood poles will be removed from wetland habitat, reducing overall potential operations and maintenance related impacts on biological resources than under current conditions because operations and maintenance visits to those locations will no longer be required. Accordingly, the impact analysis is focused only on construction activities required to install the new conductor, remove and top poles, replace existing wooden poles, install new structures, and to establish required access and construction work areas, as described in Chapter 2.0, Project Description.

Impacts on biological resources from the project may be temporary or permanent. Temporary impacts will occur during construction activities and be short-term (i.e., lasting only during the period of construction or subsequent site restoration). The temporary impacts consist of disturbance associated with construction, such as temporary access roads, construction work areas, installation of temporary snub poles, pull sites, and staging areas and will involve only a minimal amount of grading. Permanent impacts are those that would result in the permanent loss of sensitive biological resources from the placement of power poles or other permanent structures. Almost all of the impacts on biological resources associated with this project will be temporary.

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 Impact***

Construction work associated with the project could directly or indirectly (through habitat modification) affect special-status plant, wildlife, and fish species. The following special-status species could be affected by the project.

Special-Status Plants

One special-status plant species, Lyngbye’s sedge, was identified in the project area during plant surveys conducted in 2016. Lyngbye’s sedge is an obligate riparian and wetland species associated with Elk River, Martin Slough, and Ryan Slough. The majority of Lyngbye’s sedge occurrences will be avoided as they are located outside anticipated construction work areas and will be fenced off pursuant to APM BIO-7. Occurrences of this species, however, may be present in some potential construction work areas and access routes. Lyngbye’s sedge may be damaged or destroyed by ground disturbance associated with temporary construction activities in construction work areas, including staging areas and temporary access routes. Lyngbye’s sedge also may be indirectly affected by soil compaction and the spread of non-native invasive species from project vehicle and equipment travel and staging. If Lyngbye’s sedge cannot be avoided, the avoidance measures in APM BIO-7 will be implemented to reduce impacts to Lyngbye’s sedge. PG&E will also implement APM BIO-1 through APM BIO-5 to further minimize impacts on special-status plant species.

Vegetation removal, ground disturbance, and vehicle use are among the principal risk factors for the introduction and spread of invasive plant species. Construction of staging areas, temporary access roads, and other ground-disturbing activities may introduce invasive plants into previously uninfested areas or cause existing infestations of invasive plants to spread. Invasive plants can negatively affect the integrity of native species and can modify habitats, making them unsuitable for native plant species (both common and special-status). Implementing APM BIO-1 through APM BIO-5 and APM BIO-7 will avoid, protect, and restore habitats affected by the project and will minimize the risk that project activities could introduce and spread invasive plants in the project area.

With implementation of these APMs, and because project impacts will be mostly temporary and will not exacerbate the factors that contribute to the rarity of this species (e.g., habitat fragmentation and alterations to hydrologic regime, resulting largely from urbanization), project activities will have less-than-significant impacts on special-status plants.

Special-Status Fish and Wildlife

Pacific lamprey, longfin smelt, coho salmon, Chinook salmon, steelhead, coastal cutthroat trout, and tidewater goby

Several special-status fish species have the potential to occur in the project area, at various life stages, where the power line crosses over the Elk River, Martin Slough, and Ryan Slough. It is unlikely that special-status fish species regularly occur in Buhne Slough due to the tidally restricted downstream entrance situated behind a single tide gate. This tide gate is the single downstream access point for special-status fish species in the otherwise isolated marsh associated with Buhne Slough. Buhne Slough has no surface connectivity to occupied upstream habitats.

There will be no direct impacts to fish species that may occur in the Elk River, Martin Slough, or Ryan Slough (and associated tributaries thereof) because the project has been designed to avoid any in-water work within any stream, river, or slough channel. Accordingly, there will be no direct impacts to Elk River, Martin Slough, or Buhne Slough. However, construction activities will occur in tidal wetlands abutting Buhne Slough. Ground-based construction activities in tidally influenced wetlands near Buhne slough will not occur during extreme high tide events that flood the construction work areas.

There is potential for indirect impacts to fish and/or fish habitat if hazardous materials (e.g., oils and fuels), soil, or sediment from construction runoff is accidentally released into rivers or sloughs from project activities. With implementation of APM BIO-1 through APM BIO-4, APM BIO-5, and APM BIO-9, as well as APM WQ-1, APM WQ-2, APM HAZ-1, and APM HAZ-2, any incidental sediment, runoff, and accidental releases will be avoided. Accordingly, potential indirect impacts on special-status fish species will be less than significant.

Southern torrent salamander

Construction work areas have been sited to avoid disturbance of southern torrent salamander habitat. Direct injury or mortality of individuals, or disturbance to habitat is not anticipated for this species. Additionally, implementation of APM-BIO-1 through APM BIO-5 and APM BIO-8 will further reduce potential indirect impacts to this species and its habitat. Implementation of APM WQ-1, APM WQ-2, APM HAZ-1, and APM HAZ-2 will further minimize the potential for impairment of waterbodies from sediment or inadvertent release of hazardous materials that might otherwise affect southern torrent salamander. Therefore, indirect impacts on southern torrent salamander will be less than significant.

Northern red-legged frog

Northern red-legged frog has been documented in portions of the project area associated with grasslands and wetlands within the Buhne, Martin, and Ryan slough floodplains. Therefore, this species has the potential to occur in the wetland portions of the project area. The project has been designed and construction work areas have been sited to avoid any in-water work within any stream, river, or slough channel. To avoid direct injury to or mortality of individual frogs, activities in wetland areas will generally occur in the dry season, when northern red-legged frogs make fewer overland movements. In addition, PG&E will implement APM BIO-8 to reduce impacts to amphibians and APM BIO-9 to reduce impacts to wetlands, northern red-legged frog habitat. To further reduce potential for direct impacts to frogs in adjacent grassland or forested habitats, PG&E will implement APM-BIO-1 through APM BIO-5 throughout the project as applicable. These measures will also reduce impacts on individual frogs that may travel incidentally into construction work areas. Accordingly, no direct impacts on northern red-legged frog are anticipated as a result of the project.

Indirect impacts could occur if sediments or hazardous materials enter suitable northern red-legged frog habitat or if increased human presence disrupts normal foraging behaviors or movement during the breeding season. PG&E will implement APM BIO-1 and APM BIO-2, along with APM WQ-1, APM WQ-2, APM HAZ-1, and APM HAZ-2 to reduce the potential impairment of waterbodies from sediment or inadvertent release of hazardous materials that could affect northern red-legged frog habitat. Accordingly, with the implementation of APMs, indirect impacts on northern red-legged frog will be less than significant.

Western pond turtle

Western pond turtles have potential to occur in aquatic and adjacent upland habitats in the project area, including Buhne Slough, Elk River, Martin Slough, and Ryan Slough. The project has been designed and construction work areas have been sited to avoid any in-water work within any stream, river, or slough channel. Limited wetland and/or riparian vegetation will be removed or trimmed to provide construction equipment access, and PG&E will implement APM-BIO-1 through APM BIO-5 and APM BIO-8 to reduce the potential for construction activities within suitable upland habitat to directly affect the species by crushing individual turtles or upland turtle nests containing eggs.

Indirect impacts could occur if sediments or hazardous materials enter suitable pond turtle aquatic habitat or if increased human presence disrupts normal foraging behaviors or movement during the breeding season. PG&E will implement APM BIO-1 and APM BIO-2, along with APM WQ-1, APM WQ-2, APM HAZ-1, and APM HAZ-2 to reduce the potential impairment of waterbodies from sediment or inadvertent release of hazardous materials that could affect western pond turtle habitat. Accordingly, with the implementation of APMs, indirect impacts on western pond turtle will be less than significant.

White-tailed kite, northern harrier, Vaux's swift, olive-sided flycatcher, yellow warbler, and other raptors and migratory birds

Raptors and/or migratory birds, including special-status species such as white-tailed kite, northern harrier, Vaux's swift, olive-sided flycatcher, and yellow warbler may nest in or near the project area. Nesting birds may be impacted if construction activities occur near active nests during the breeding season. Direct impacts may include destruction of a nest or loss of adults, young, or eggs during vegetation trimming or grading activities. Modification to or removal of existing towers could result in direct impacts on nesting special-status raptors and non-special-status migratory birds that may use towers as nesting habitat. Indirect impacts may include as nest abandonment or premature fledging from construction-related noise and vibration (e.g., from heavy equipment, helicopters, vehicles, and generators). Indirect impacts could include degradation of foraging and nesting habitat through the removal of trees and shrubs.

If construction activities are scheduled during the nesting season, the qualified biologist will conduct nest detection surveys and implement APM-BIO 6 to minimize direct and indirect impacts to nesting birds. Following the surveys, PG&E will avoid direct impacts to active nests during vegetation removal or trimming. If active nests are sighted on existing poles that are planned for removal, removal of the pole will be postponed until after chicks have fledged. As detailed in APM-BIO 6, the qualified biologist will establish a species-specific nest buffer to minimize indirect impacts to nesting birds. While other indirect impacts could include degradation of foraging and nesting habitat through the removal of trees and shrubs, these impacts are expected to be minimal as most work activities will occur in open habitat with sparse canopy cover, in urban areas, or within an existing cleared right of way. Vegetation removal will be limited to only the amount needed to provide access for construction equipment pursuant to APM BIO-2. APM BIO-3 through APM BIO-5 will further reduce impacts on raptors and/or migratory birds to a less than significant level.

Townsend's big-eared bat and pallid bat

Townsend's big-eared bats and pallid bats may roost in barns, old building, and bridges, or basal hollows of large trees. No direct impacts on bats or their habitat is anticipated as the project is not anticipated to remove suitable roost trees, buildings, barns, or bridges. Indirect impacts resulting from project construction activities occurring near bridges, if any, will be equivalent to the existing ambient noise and vibration from traffic. Disturbance from project construction activities may occur because of additional temporary construction noise or vibration during the day. The potential noise and vibration disturbance associated with the project will be temporary, intermittent, and of relatively short duration at any single work location. Implementation of noise reduction measures (i.e., APM NOI-1) will further reduce the potential for noise-related disturbance on roosting bats and implementation of APM BIO-1 through APM BIO-5 will further minimize disturbance to roosting bats and/or their habitat. Therefore, impacts on roosting bats, including Townsend's big-eared bat and pallid bat, will be less than significant.

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

Riparian Habitat and Sensitive Natural Communities

Riparian habitat and 12 other sensitive natural communities could occur in the project area, including Sitka spruce forest, redwood forest, red fescue grassland, bigleaf maple forest, coastal dune and Sitka willow thickets, shining willow groves, Pacific silverweed marshes, slough sedge swards, small-fruited bulrush marsh, salt rush swales, coastal brambles, and pickleweed mats.

In riparian habitat, which occurs across less than 10 percent of the project area, mostly minor localized trimming of vegetation will occur; a thicket of willows around the existing poles near Humboldt Bay Substation will need to be removed to replace the wood poles with TSPs. Disturbance of small areas of riparian habitat is expected to be a less-than-significant impact because of minor, localized trimming and removal involved and the extensive amount of similar adjacent habitat present throughout the project area and surrounding vicinity. In addition, implementation of APM BIO-2 includes restoration of areas that are temporarily disturbed by project activities, which will further reduce impacts. Therefore, the impacts on riparian habitat will be less than significant.

Up to approximately 5.0 acres sensitive natural community types may be temporarily affected by siting of pull and tensioning sites, staging areas, material laydown areas, crane pads, helicopter landing zones, and other construction work areas, as well as vegetation removal and trimming activities. The impacts will be temporary, localized, and will affect less than 5 percent of special-status natural community types in the project area. In addition, implementation of APM BIO-1 through APM BIO-6 will further minimize the potential for impacts. Therefore, impacts on special-status natural communities will be less than significant.

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

All potentially jurisdictional waters and wetlands of the United States in the project area are described in the wetland delineation report prepared for the project (Stillwater Sciences 2019b). As indicated, a large portion of the existing alignment is currently situated in wetlands. In order to maintain the existing line, some unavoidable impacts to wetlands will occur. The project has been designed to minimize all direct impacts to open water habitat (i.e., waters of the U.S.). Accordingly, the project will not result in the hydrologic interruption to waterways.

In addition, the following construction techniques have been incorporated into the project and APMs to reduce impacts on wetlands:

- Helicopters will be used to perform pole installation and removal in the most sensitive biological resource areas, where feasible and safe, to minimize wetland impacts.
- Lattice steel towers will be installed in certain areas using the micropiling technique to minimize the area of wetland disturbance.

- Reconductoring work and structure installation in wetland areas will generally occur in the dry season to minimize direct and indirect impacts on wetland features (see APM BIO-9).
- Where travel across seasonal wetlands, seasonal drainages, or other areas with wet surface conditions is necessary to access construction work areas, temporary matting (e.g. rig mats or timber roads) will be used to avoid soil compaction and mixing (see APM BIO-9).

As indicated above, the project has been designed to avoid impacts on wetlands to the greatest extent feasible by including helicopter work, micropiling techniques, and seasonal restrictions where feasible. Where the existing Humboldt Bay-Humboldt #1 60 kV Power Line parallels the Humboldt Bay-Eureka 60 kV Power Line, PG&E will transfer both lines onto shared towers for a distance of approximately 0.6 mile to reduce the footprint of the transmission system in wetland areas. As a result of these design efforts, approximately 14 existing wood poles currently located within a wetland associated with Buhne Slough will be permanently removed.

Unavoidable permanent and temporary impacts on wetlands associated with project are described below.

Permanent Direct Impacts

Project construction activities may result in an inconsequential area of permanent direct impacts on wetlands outside of the coastal zone (approximately 9 square feet) and may result in up to approximately 542 square feet (0.01 acres) of permanent direct impacts within the coastal zone, depending on the final design for the four concrete tower foundation footings for each new LST. In addition, permanent impacts will be further reduced by the permanent removal of approximately 14 wood poles from wetland areas. Removing these poles and replacing with towers that have longer spans will reduce the number of structures requiring maintenance. Based on the existing habitat conditions and utility operation and maintenance practices, surrounding areas not directly affected by tower footings will continue to provide similar habitat value after project implementation. Accordingly, these impacts will not result in habitat fragmentation, local loss of breeding habitat, or cause hydrologic disruption. Based on the final (post-construction) documented extent of impacts, PG&E will provide compensation for those impacts according to relevant permit conditions and in consultation with the respective regulatory agencies in accordance with APM BIO-11.

Temporary Direct Impacts

Project construction activities may result in up to approximately 0.5 acres of temporary impacts to wetlands outside of the coastal zone and approximately 14.6 acres within the coastal zone, related to short-term disturbances from temporary overland access and construction work areas located within wetland features. Reconductoring and pole and tower installation activities in wetland areas will generally occur in the dry season (APM BIO-9). If wet season construction is required because of line clearance or safety requirements, PG&E will use temporary matting or other protection measure (e.g., rig mats, timber roads, plating, or tracked vehicles [preferably rubber tracked]) to minimize temporary impacts and ground disturbance (APM BIO-9). Temporary impacts to wetlands typically will not involve grading, but will involve surface disturbance from driving and staging equipment. Construction activities will occur for a relatively short duration (from a few days to approximately one month at each location) and will be limited to defined work spaces. PG&E will restore temporarily disturbed wetland areas per APM BIO-10 post construction.

The qualified biologist will routinely document and update the actual acreages of permanent and temporary wetland impacts during the project. PG&E will implement the following measures to avoid and minimize impacts to wetlands: APM BIO-1 through APM BIO-5, and APM BIO-9. In addition, PG&E will restore all temporarily impacted wetland areas pursuant to APM BIO-10. Finally, APM WQ-1, APM WQ-2, APM HAZ-1, and APM HAZ-2 will include implementation of a SWPPP, hazardous substance control and emergency response procedures, and other measures to protect water quality during construction. Collectively, the project design elements and APMs described above will result in less than significant impacts on wetlands.

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*

Some parts of the project area are adjacent to large tracts of open lands. Wildlife corridors in the project area consist of creeks, drainages, agricultural fields and ditches, and riparian habitat.

The project will not include construction that could feasibly obstruct wildlife movement. Impacts on wildlife movement are therefore not anticipated. Construction activities will occur an existing utility alignment for a relatively short duration (between a few days up to approximately one month at each location), and will occupy relatively small areas for staging, construction, and access. Terrestrial animals will be able to move freely around temporary construction work areas. No in-water work will take place in any streams, creeks, or sloughs. Therefore, the project will have no impact on wildlife and fish movement corridors.

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

As described above, Humboldt County identifies special protections for Streamside Management Areas (SMA) by local ordinance. Local ordinances are not applicable to this project as it is under the exclusive jurisdiction of the CPUC. However, a description of the SMA protections is included here for purposes of facilitating a CEQA significance analysis. Local protections of trees outside of Humboldt County's local coastal plan are limited to tree removal in SMAs; SMAs in the project area including upper Martin Slough and headwaters to Martin Slough near the town of Cutten (http://webgis.co.humboldt.ca.us/HCEGIS2.0/). The project's design and APMs are compatible with Humboldt County's Streamside Management Area Ordinance, therefore there will be no impact.

The APMs referenced above will also eliminate or minimize potential adverse effects on wetlands, aquatic habitats, and habitat for special-status species to less than significant levels, as discussed above, which is consistent with the goals and policies in the Humboldt County General Plan. The project will not conflict with any local policies or ordinances protecting biological resources, therefore there will be no impact.

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

While the existing power line crosses the plan area for the Green Diamond Resource Company's Northern Spotted Owl HCP, construction of the project is not covered by HCP and will not occur in special management areas established by the HCP. There are currently no other adopted HCPs, Natural Community Conservation Plans, or other approved conservation plans in the project area. Accordingly, the project would not conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state plan, therefore there will be no impact.

3.4.5 References

Altman, B. and R. Sallabanks. 2000. Olive-sided flycatcher (*Contopus cooperi*). In A. Poole, editor. The birds of North America online. Cornell Lab of Ornithology, Ithaca, New York. Available at: http://bna.birds.cornell.edu/bna/species/502/articles/introduction.

AMEC. 2012. Unpublished data. Draft maps of the Project Area including any 2012 sightings of special-status wildlife and plants and preliminary vegetation community types.

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. The Jepson manual: vascular plants of California, second edition. University of California Press, Berkeley.

Brumo, A. F., L. Grandmontagne, S. N. Namitz, and D. F. Markle. 2009. Evaluation of approaches used to monitor Pacific lamprey spawning populations in a coastal Oregon stream. Pages 204–222 in L. R. Brown, S. D. Chase, M. G. Mesa, R. J. Beamish, and P. B. Moyle, editors. Biology, management, and conservation of lampreys in North America. American Fisheries Society, Symposium 72, Bethesda, Maryland.

Bull, E. L., and C. T. Collins. 2007. Vaux's swift (*Chaetura vauxi*). In A. Poole, editor. The birds of North America online. Cornell Lab of Ornithology, Ithaca, New York. Available at: http://bna.birds.cornell.edu/bna/species/077/articles/introduction.

Call, M. W. 1978. Nesting habits and survey techniques for common western raptors. Technical Note No. 316. U.S. Bureau of Land Management, Portland, Oregon.

CDFW. 2013. Evaluation of the petition to list the Townsend's big-eared bat (*Cornynorhinus townsendii*) as threatened or endangered. Prepared by CDFW, Sacramento, California.

__________. 2016. California Natural Diversity Database. Rarefind 5. Electronic database. Natural Heritage Division, California Department of Fish and Wildlife, Sacramento, California. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/rarefind.asp.

CDFW. 2018. Species information for longfin smelt. Webpage. Sacramento, California. https://www.wildlife.ca.gov/Conservation/Fishes/Longfin-Smelt

CNPS (California Native Plant Society). 2016. Inventory of rare and endangered plants (online edition). California Native Plant Society, Rare Plant Scientific Advisory Committee, Sacramento, California. Available at: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi.

______. 2018. A Manual of California Vegetation, Online Edition. California Native Plant Society, Sacramento, CA. Available at: http://vegetation.cnps.org/ Accessed: August 2018.

CalPIF (California Partners in Flight). 2002. Version 1.0. The draft coniferous forest bird conservation plan: a strategy for protecting and managing coniferous forest habitats and associated birds in California. Point Reyes Bird Observatory, Stinson Beach, California. Available at: http://www.prbo.org/calpif/plans.html.

Chamberlain, C. D. 2011. Tidewater Goby investigations - 2010 north coast populations. U.S. Fish and Wildlife Service. Arcata Fish and Wildlife Office, Arcata Fisheries Data Series Report DS-2011-21, Arcata, California.

Courtney, S. P., J. A. Blakesley, R. E. Bigley, M. L. Cody, J. P. Dumbacher, R. C. Fleischer, A. B. Franklin, R. J. Gutiérrez, J. M. Marzluff, and L. Sztukowski. 2004. Scientific evaluation of the status of the northern spotted owl. Sustainable Ecosystems Institute, Portland, Oregon.

Craig, D., and P. L. Williams. 1998. Willow flycatcher (*Empidonax traillii*). In The riparian bird conservation plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. Available at: http://www.prbo.org/calpif/htmldocs/riparian.html.

Davis, J. N., and C. A. Niemala. 2008. Northern harrier (*Circus cyaneus*). Pages 149–155 in W. D. Shuford and T. Gardali, editors. California bird species of special concern: a ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of western birds no. 1. Western Field Ornithologists, Camarilla, California and California Department of Fish and Game, Sacramento, California.

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

eBird. 2017. eBird: An online database of bird distribution and abundance. Available at: https://ebird.org/home. Accessed: October 2017. eBird, Ithaca, New York.

Garwood, R. S. 2017. Historic and contemporary distribution of Longfin Smelt (*Spirinchus thaleichthys*) along the California coast. California Fish and Game Journal, Vol 103, Number 3.

Gertsch, M., D. Valentine, D. Van De Water, and B. Walton. 1994. American peregrine falcon. In C. G. Thelander, editor. 1994. Life on the edge: a guide to California's endangered natural resources. BioSystems Books, Santa Cruz, California.

Grinnell, J. and A. H. Miller. 1944. The distribution of the birds of California. Pacific Coast Avifauna 27: 1–608.

Gunckel, S. L., K. K. Jones, and S. E. Jacobs. 2009. Spawning distribution and habitat use of adult Pacific and western brook lampreys in Smith River, Oregon. Pages 173–189 in L. R. Brown, S. D. Chase, M. G. Mesa, R. J. Beamish, and P. B. Moyle, editors. Biology, management, and conservation of lampreys in North America. American Fisheries Society, Symposium 72, Bethesda, Maryland.

Gutiérrez, R. J., A. B. Franklin, and W. S. Lahaye. 1995. Spotted owl (*Strix occidentalis*). In A. Poole, editor. The birds of North America online. Cornell Lab of Ornithology, Ithaca, New York. Available at: http://bna.birds.cornell.edu/bna/species/179/articles/introduction.

Harris, S. W. 1993. Northwestern California birds. Humboldt State University Press, Arcata, California.

Heath, S. 1998. Yellow warbler (*Dendroica petechia*). In The riparian bird conservation plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. Available at: http://www.prbo.org/calpif/plans.html. Accessed: October 2017.

______. 2008. Yellow warbler (*Dendroica petechia*). 2008. Pages 332–339 in W. D. Shuford, and T. Gardali, editors. California bird species of special concern: a ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of western birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Hellmair, M. and A.P. Kinziger. 2014. Increased Extinction Potential of Insular Fish Populations with Reduced Life History Variation and Low Genetic Diversity. Consuegra S, ed. PLoS ONE. 2014; 9(11): e113139.

Holland, D. C. 1994. The western pond turtle: habitat and history. Final Report. U.S. Department of Energy, Bonneville Power Administration, Portland, Oregon.

H. T. Harvey & Associates. 2012. Humboldt Bay regional spartina eradication plan. Prepared by H. T. Harvey & Associates, Arcata, California for California State Coastal Conservancy, Oakland, California.

Humboldt County Code, Zoning Regulations. Title III Land Use and Development, Division 1, Planning. Available at https://humboldtgov.org/DocumentCenter/View/4029/Humboldt-County-Zoning-Regulations-PDF. Accessed on December 21, 2018.

Hunter, J. E. 2008. Vaux's swift (*Chaetura vauxi*). Pages 254–259 in W. D. Shuford and T. Gardali, editors. California bird species of special concern: a ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of western birds no. 1. Western Field Ornithologists, Camarilla, California and California Department of Fish and Game, Sacramento, California.

Hunter, J. E., D. Fix, G.A. Schmidt and J. C. Power. 2005. Atlas of the breeding birds of Humboldt County, California.

Jackman, R. E., and J. M. Jenkins. 2004. Protocol for evaluating bald eagle habitat and populations in California. Report prepared for USFWS, Sacramento, California.

Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. Final Report. Prepared for California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California.

Jones, L. L. C., W. P. Leonard, and D. H. Olson, editors. 2005. Amphibians of the Pacific Northwest. Seattle Audubon Society, Washington.

Kan, T. T. 1975. Systematics, variation, distribution, and biology of lampreys of the genus Lampetra in Oregon. Doctoral dissertation. Oregon State University, Corvallis.

Karraker, N. E., L. M. Ollivier, and G. R. Hodgson. 2005. Oviposition site of the southern torrent salamander (*Rhyacotriton variegatus*) in northwestern California. Northwestern Naturalist 86: 34–36.

Lannoo, M. J., editor. 2005. Amphibian declines: the conservation status of United States species. University of California Press, Berkeley.

Lowther, P. E., C. Celada, N. K. Klein, C. C. Rimmer, and D. A. Spector. 1999. Yellow warbler (*Dendroica petechia*). In A. Poole, editor. The birds of North America online. Cornell Lab of Ornithology, Ithaca, New York. Available at: http://bna.birds.cornell.edu/bna/species/454/articles/introduction.

MacWhirter, R., B. Bildstein, K. L. Bildstein. 1996. Northern harrier (*Circus cyaneus*). In A. Poole, editor. The birds of North America online. Cornell Lab of Ornithology, Ithaca, New York. Available at: http://bna.birds.cornell.edu/bna/species/210/articles/introduction. Accessed October 2017.

Mayer, K. E., and W. F. Laudenslayer, Jr., editors. 1988. A guide to wildlife habitats of California. State of California, Resources Agency, Department of Fish and Game, Sacramento, California. Available at: https://www.wildlife.ca.gov/Data/CWHR/Wildlife-Habitats.

McCraney, WT., G. Goldsmith, D.K. Jacobs, and A.P. Kinziger. 2010. Rampant drift in artificially fragmented populations of the endangered tidewater goby (*Eucyclogobius newberryi*). Molecular Ecology 2010; 19(16): 3315–3327.

Moore, J. W., and J. M. Mallatt. 1980. Feeding of larval lamprey. Canadian Journal of Fisheries and Aquatic Sciences 37: 1,658–1,664.

Moyle, P. B. 2002. Inland fishes of California. University of California Press.

Moyle, P. B., R. M. Quiñones, J. V. Katz and J. Weaver. 2015. Fish species of special concern in California. California Department of Fish and Wildlife, Sacramento, California.

Nafis, G. 2017. California Herps - A Guide to the Amphibians and Reptiles of California. Available at: http://www.californiaherps.com/ Accessed October 2017.

National Marine Fisheries Service. 1999a. Designated critical habitat; Central California Coast and Southern Oregon/Northern California Coast coho salmon. Federal Register 64: 24,049–24,062.

______. 1999b. Endangered and threatened species; threatened status for two chinook salmon evolutionarily significant units (ESUs) in California. Federal Register 64: 50,394–50,415.

______. 2005a. Endangered and threatened species; final listing determinations for 16 ESUs of West Coast salmon, and final 4(d) protective regulations for threatened salmonid ESUs. Federal Register 70: 37,160–37,204.

______. 2005b. Endangered and threatened species; designation of critical habitat for seven Evolutionarily Significant Units of Pacific salmon and steelhead in California; final rule. Federal Register 70: 52,488–52,627.

______. 2006. Endangered and threatened species: final listing determinations for 10 Distinct Population Segments of west coast steelhead. Federal Register 71: 834–862.

______. 2009. Endangered and threatened wildlife and plants: final rulemaking to designate critical habitat for the threatened Southern Distinct Population Segment of North American green sturgeon; final rule. Federal Register 74: 52,300–52,351.

Pierson, E. D., and G. M. Fellers. 1998. Distribution and ecology of the big-eared bat, *Corynorhinus townsendii* in California. Prepared for U.S. Geological Service, Species at Risk Program.

Pierson, E. D., and W. E. Rainey. 2002. Bats. Pages 385–400 in J. E. Vollmar, editor. Wildlife and rare plant ecology of eastern Merced County’s vernal pool grasslands. Vollmar Consulting, Berkeley, California.

______. 2007. Bat distribution in the forested region of northwestern California. Prepared for California Department of Fish and Game, Sacramento, California.

Pierson, E. D., W. E. Rainey, and C. Corben. 2001. Seasonal patterns of bat distribution along an altitudinal gradient in the Sierra Nevada. Report to the California Department of Transportation, California State University at Sacramento Foundation, Yosemite Association, and Yosemite Fund.

Pinnex, B. 2008. Green sturgeon monitoring – Humboldt Bay acoustic telemetry. U. S. Fish and Wildlife Service. Arcata, California.

Pinnix, W., P. Nelson, G. Stutzer, and K. Wright. 2012. Residence time and habitat use of coho salmon in Humboldt Bay, California: an acoustic telemetry study. Environmental Biology of Fishes 96: 315–323.

Pious, M. 1994. Nesting and roosting habitat of spotted owls in managed redwood/Douglas-fir forests, California. Prepared by Louisiana-Pacific Corporation, Calpella, California for California Department of Fish and Game, Georgia-Pacific Corporation, Louisiana-Pacific Corporation, and U.S. Fish and Wildlife Service.

Pletcher, F. T. 1963. The life history and distribution of lampreys in the Salmon and certain other rivers in British Columbia, Canada. Master’s thesis. University of British Columbia, Vancouver.

Porter, T. R. 1973. Fry emergence trap and holding box. The Progressive Fish-Culturist 35: 104–106.

Ralph, C. J., and K. Hollinger. 2003. The status of the willow and Pacific-slope flycatchers in the Northwestern California and Southern Oregon. Studies in Avian Biology 26: 104–117.

Reese, D. A. 1996. Comparative demography and habitat use of western pond turtles in northern California: the effects of damming and related alterations. Unpublished doctoral dissertation. University of California, Berkeley.

Rosseau, J., and C. J. Ralph. 2012. Abundance of willow flycatchers throughout the year, Humboldt County, Northern California. Letter to M. G. van Hattem, Coastal Conservation Planning, CDFW, from HBBO Program Director, Klamath and Humboldt Bay Bird Observatories and USFWS Redwood Sciences Laboratory. Available at: https://www.fs.fed.us/psw/publications/ralph/2012_ralph(rousseau)_wifl-abundance.pdf

Sedgwick, J. A. 2000. Willow flycatcher (*Empidonax traillii*). In A. Poole, editor. The birds of North America online. Cornell Lab of Ornithology, Ithaca, New York. Available at: http://bna.birds.cornell.edu/bna/species/533/articles/introduction

Sherwin, R. E., D. Stricklan and D. S. Rogers. 2000. Roosting affinities of Townsend's big-eared bat (*Corynorhinus townsendii*) in northern Utah. Journal of Mammalogy 81: 939–947.

Sherwin, R., and D. A. Rambaldini. 2005. *Antrozous pallidus*, pallid bat. Species account developed for the Western Bat Working Group 1998 Reno Biennial Meeting; updated for the 2005 Portland Biennial Meeting. Western Bat Working Group, Rapid City, South Dakota. Available at: http://wbwg.org/species_accounts/vespertilonidae/anpa.pdf.

Sherwin, R., and A. Piaggio. 2005. *Corynorhinus townsendii* Townsend's big-eared bat. Species account developed for the Western Bat Working Group 1998 Reno Biennial Meeting; updated for the 2005 Portland Biennial Meeting. Western Bat Working Group, Rapid City, South Dakota. Available at: http://wbwg.org/species_accounts/vespertilonidae/coto.pdf.

Sterling, J., and P. W. C. Paton. 1996. Breeding distribution of Vaux's swift in California. Western Birds 27: 30–40.

Stillwater Sciences. 2011. Humboldt 60 kV Transmission Line Reconductoring Project biological constraints analysis, Humboldt County, California. Prepared by Stillwater Sciences, Arcata, California for Pacific Gas and Electric Company, Environmental Services Department, San Ramon, California.

______ . 2016. Pacific lamprey in Humboldt Bay tributaries: a summary of information and identification of research needs. Prepared by Stillwater Sciences, Arcata, California for Wiyot Tribe, Loleta, California.

______ . 2019a. Biological Resources Technical Report for the PG&E Humboldt Bay-Humboldt #1 60 kV Reconductoring Project, Humboldt County, California. Prepared by Stillwater Sciences, Berkeley, California for Pacific Gas and Electric Company, Sacramento California.

______ . 2019b. Preliminary Delineation of Waters of the United States, Including Wetlands, for the PG&E Humboldt Bay-Humboldt #1 60 kV Reconductoring Project, Humboldt County, California. January. Prepared by Stillwater Sciences, Berkeley, California for Pacific Gas and Electric Company, Sacramento, California.

Trotter, P. 2007. Cutthroat: native trout of the West. 2nd edition. University of California Press, Berkeley.

U.S. Army Corps of Engineers. 1987. Corps of Engineers wetlands delineation manual. Technical Report Y-87-1. USACE, Environmental Laboratory, Waterways Experiment Station, Vicksburg, Mississippi.

______. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountain and Valley Region.*

U.S. Fish and Wildlife Service (USFWS). 1994. Endangered and threatened wildlife and plants: determination of endangered status for the tidewater goby. Federal Register 59: 5,494–5,498.

______ . 2007. Final Environmental Assessment. Green Diamond Resource Company, California Timberlands. Amendments to the Northern Spotted Owl Habitat Conservation Plan. Online: https://www.fws.gov/arcata/es/reports/1992GrnDiamond_NSOHCP/HCP_Amendments/Green%20Diamond%20Final%20EA.pdf. Accessed October 15, 2018.

______ . 2011. Revised recovery plan for the northern spotted owl (*Strix occidentalis caurina*). USFWS, Region 1, Portland, Oregon.

______ . 2012. Endangered and threatened wildlife and plants; 12-month finding on a petition to list the San Francisco Bay-Delta population of the longfin smelt as endangered or threatened; proposed rule. Federal Register 77: 19,756–19,797.

______ . 2013. Endangered and threatened wildlife and plants; designation of critical habitat for tidewater goby; final rule. Federal Register 78: 8,746–8,819.

______ . 2016. IPaC, information for planning and consultation online system. Threatened and endangered species list. Electronic database. USFWS, Washington D.C.

______ . 2018. Appendices. Draft Environmental Impact Statement for the Green Diamond Forest Habitat Conservation Plan. July 2018. Online: https://www.fws.gov/arcata/es/HCP/1_DEIS%20for%20the%20Green%20Diamond%20FHCP/2a2_Draft%20EIS%20for%20the%20Green%20Diamond%20FHCP_Appendixes.pdf. Accessed October 15, 2018.

van de Wetering, S. J. 1998. Aspects of life history characteristics and physiological processes in smolting Pacific lamprey (*Lampetra tridentata*) in a central Oregon coast stream. Master's thesis. Oregon State University. Corvallis.

Wallace, M. and S. Allen. 2007. Juvenile salmonid use of the tidal portions of selected tributaries to Humboldt Bay, California. Contract No. P0410504. Pacific States Marine Fisheries Commission and California Department of Fish and Game.

Welsh, H. H., Jr., and A. J. Lind. 1996. Habitat correlates of the southern torrent salamander, *Rhyacotriton variegatus* (*Caudata: Rhyacotritonidae*), in northwest California. Journal of Herpetology 30: 385–398.

White, C. M., N. J. Clum, T. J. Cade, and W. G. Hunt. 2002. Peregrine falcon (*Falco peregrinus*). In A. Poole, editor. The birds of North America online. Cornell Lab of Ornithology, Ithaca, New York. Available at: https://birdsna.org/Species-Account/bna/species/perfal/introduction

Widdowson, W. P. 2008. Olive-sided flycatcher (*Contopus cooperi*). Pages 260–265 in W. D. Shuford and T. Gardali, editors. California bird species of special concern: a ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of western birds no. 1. Western Field Ornithologists, Camarilla, California and California Department of Fish and Game, Sacramento, California.

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

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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 as a result of construction, operation, and maintenance of the project. It presents the methods and results of cultural and paleontological resources studies of the project area limits (PAL), which is defined as all the areas of indirect and direct impact associated with the construction effort. Areas that will experience direct impacts include locations that will be subject to ground disturbance, such as pole replacement locations. The analysis concludes that impacts on cultural and paleontological resources will be less than significant with incorporation of the Applicant-Proposed Measures (APMs) described in Section 3.5.6. 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 3.5.6. The following summary concerning cultural resources is derived from the Cultural Resources Inventory, Survey, and Evaluation Report (Quercus Consultants, Inc. 2019) and the Paleontological Resources Technical Report (Richards 2019), which 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 §21080.3.1 once the application is complete. PG&E is not aware of any Tribal Cultural Resources that will be impacted by the project.

3.5.2 REGULATORY BACKGROUND AND METHODOLOGY

3.5.2.1 Regulatory Background

Federal

National Historic Preservation Act

The project will likely require a permit under Section 404 of the Clean Water Act, and therefore is subject to compliance with Section 106 of the National Historic Preservation Act (54 USC 306108) to address potential impacts to historic properties (resources that are eligible for listing on the National Register of Historic Places [NRHP]).

State

California Register of Historical Resources

An important archaeological or historical resource under Section 21083.2 of CEQA, is an object, artifact, structure, or site that is listed on or eligible for listing on the California Register of Historical Resources (CRHR). Eligible historical resources, according to CEQA Guidelines Section 15064.5a, are those that can be clearly shown to meet one or more of the following criteria:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
- Is associated with the lives of persons important in our past
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value
- Has yielded, or may be likely to yield, information important in prehistory or history

Automatic listings include properties that are listed on the National Register of Historic Places. In addition, California 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 Public Resources Code 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 and also provided 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:

- 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
- 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 in the significance of a TCR could be a potentially 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 (PRC) also govern archaeological finds of human remains and associated objects. Procedures are detailed under PRC Section 5097.98 through 5097.996 for actions to be taken whenever Native American remains are discovered. Furthermore, Section 7050.5 of the California Health and Safety Code states that any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the PRC. Any person removing human remains without authority of 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 5097-5097.6, 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 the only cultural resources within the PAL designated for local listing are those also designated at the federal level. 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. The following description of regulations that designate local cultural resources is provided for informational purposes and to assist with CEQA review.

3.5.2.2 Methodology

Cultural Resources

Records Search and Historical Research

On March 13, 2012, a records search was requested of the California Historical Resources Information System (CHRIS) regional office at the North Coast Information Center (NCIC), located in Klamath, California. The NCIC search included any previously recorded cultural resources and investigations within a 0.5-mile radius of the existing power line.

A second records search was performed to update data in 2017. On September 28, 2017, a records search was performed at the CHRIS regional office at the Northwest Information Center (NWIC), located in Rohnert Park, California. The NWIC search (NWIC File No.: 17-0903) updated the research performed by the NCIC in 2012 within a 0.25-mile radius of the existing power line and anticipated access roads and construction areas.

Because some elements of the project were expanded, a third records search was performed on September 21, 2018, with the NWIC (NWIC File No.: 18-0585) to capture all areas within 0.25-mile of the expanded PAL.

The CHRIS searches also included a review of the NRHP, the CRHR, the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list, as well as a review of all available historic U.S. Geologic Survey 7.5- and 15-minute quadrangle maps.

Local Historic Group/Local Government Coordination

PG&E mailed letters to eight local historic groups/local governments on May 16, 2012, requesting information on potential or known historic resources in and around the PAL. The eight local historic groups/local governments contacted include: City of Eureka, Clarke Historical Museum, County of Humboldt (Community Development, Planning Division), Eureka Heritage Society, Ferndale Museum, Historical Society of Arcata, Humboldt Bay Maritime Museum, and Humboldt County Historical Society.

Buried Site Sensitivity

The potential for buried resources within the PAL was estimated based on the age and distribution of surface deposits, combined with the distance to known water sources such as historic-era streams and Humboldt Bay.

Archaeological Survey

Cultural resource specialists conducted intensive-level cultural resources surveys from May 21, 2012 through June 1, 2012, on July 2, 2012, from November 7 through 9, 2017, from September 24 through 26, 2018, and on October 11, 2018.

Intensive-level archaeological survey methods consisted of a pedestrian survey over the entire PAL. Archaeologists used aerial photographs and maps to document the location of any resources encountered during the survey. Within each transect, the ground surface was examined for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, or fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions, features indicative of the current or former presence of structures or buildings (e.g., standing exterior walls, post holes, foundations), and historic artifacts (e.g., metal, glass, or ceramics). Any ground disturbance was visually inspected, such as burrows, cut banks, and drainages for exposed subsurface materials. At one location within the PAL, subsurface testing was performed to verify that a paleontological find was neither a cultural resource, nor a scientifically significant invertebrate or plant fossil. This testing was observed by a representative of the Wiyot Tribe (Browning 2017).

Native American Coordination

As part of PG&E's outreach efforts Native American organizations and individuals, PG&E contacted the NAHC in 2012 and again in 2017, with a request for information about sacred lands that may be located within the project area and a list of interested Native American groups and individuals near the project area.

In April 2012, PG&E contacted the NAHC to request a review of the Sacred Lands File (SLF). In a response faxed on May 3, 2012, the NAHC did not identify any sacred lands within the PAL, but provided a list of local groups and individuals to contact for further information regarding local knowledge of cultural resources or sacred lands. PG&E reached out to the contacts identified by the NAHC. A summary of these communications is provided below in Section 3.5 and in Appendix D of this PEA.

In late 2017, PG&E again requested a SLF search and contact list from NAHC due to the amount of time that had elapsed between the previous request and Native American coordination efforts. NAHC responded with a letter dated December 4, 2017, which included a list of groups and individuals to contact and asserted that a Native American cultural site is present in the PAL. NAHC recommended that PG&E contact the Wiyot Tribe for information specific to that site. PG&E reached out to the identified contacts. Additional site investigations were conducted at the identified potential cultural site in coordination with the Wiyot Tribe. The results of this outreach and additional investigation are summarized below in Section 3.5.

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

Professional Standards

To address what would constitute a significant impact to paleontological resources, PG&E utilized the Potential Fossil Yield Classification System (PFYC) developed by the BLM in Informational Memorandum 2016-124 (BLM 2016) to assess paleontological sensitivity and level of effort required to manage potential impacts to significant resources. 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. The classifications range from very low to very high with associated numerical indicators (i.e., Class 1 to Class 5). The classification was applied to the geologic formation, member, or other distinguishable unit at the most detailed mappable level available.

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.

Existing Information Review

The analysis of existing data included review of geologic mapping of the PAL and a 0.25-mile buffer by Dibblee and Minch (2008). The literature reviewed included published and unpublished scientific papers. A paleontological museum record search was requested from the University of California Museum of Paleontology (UCMP) in Berkley, California, and supplemented by record searches of online databases.

Paleontological Sensitivity

The paleontological potential of the PAL was evaluated using the federal PFYC system and is summarized in Table 3.5-2 below.

Table 3.5-2: Paleontological Sensitivity Ratings Employed

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.

Table 3.5-2: Paleontological Sensitivity Ratings Employed

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary (PFYC System)
	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.
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: BLM 2016

3.5.3 Environmental Setting

3.5.3.1 Prehistory

Early archaeological research in the northwest coastal region centered on explaining the order and chronology of entry of the diverse groups present in this small area (Fredrickson 1984:477). In all, speakers of at least 11 dialects representing three major linguistic groupings (Algic superfamily, Athabascan family, and Hokan stock) resided along the coast and immediate interior and shared enough similarities culturally to be grouped by Kroeber (1925) into a single cultural subregion.

The culture history of California's northwest coast was initially organized by Fredrickson (1984) into patterns and aspects, where patterns are largely shared cultural expressions that are shared by multiple culture groups over a period of time, and aspects are local variants of patterns, possibly reflecting discrete culture groups. Six basic patterns are recognized, with four being applicable to the PAL, ordered from oldest to youngest: Post Pattern, Borax Lake Pattern, Mendocino Pattern, and Gunther Pattern. As much of what we know about the archaeology of this region derives from research after Fredrickson's 1984 synthesis; the following overview relies heavily on Hildebrandt (2007).

The earliest recorded human occupation of the region is evidenced by *Post Pattern (11,500—8000 cal BCE)* sites, which are notable for their flaked stone crescents and fluted (Clovis-like) projectile points. Dating these sites is difficult, since no clearly single component sites or strata/components have been identified to date. Obsidian hydration readings suggest a Pleistocene/Holocene transition date for this pattern, however. Given the lack of identified, unmixed Post Pattern sites to date, little can be said about cultural adaptations during the period (Hildebrandt 2007:86-87).

The subsequent *Borax Lake Pattern (8000—5000 cal BCE)* is better known. Marked by large, wide-stemmed projectile points with concave bases, serrated bifaces, manos, and metates, this pattern occurs from the coast to nearby mountains and ridges with elevations of up to 6,000 feet. Some of the oldest houses in California are assigned to the Borax Late Pattern, although the settlement pattern appears to have been highly mobile, with frequently relocated base camps serving as an adaptation to resources distributed in patchwork patterns. Coastal sites from this period are rare; the one well-defined site is located about 2 kilometers inland in Humboldt County (CA-HUM-513/H), and it lacks characteristically coastal ecofacts and artifacts (Hildebrandt 2007:87-90).

The *Mendocino Pattern (3000 cal BCE—cal CE 500)* is identified by the presence of side-notched, corner-notched, and concave-base dart points, manos and metates, and the occasional cobble mortar and pestle. Most sites appear to be temporary camps or short-term residential basis occupied by people who focused their subsistence pursuits on terrestrial resources. Coastal sites include an example in Humboldt Bay (CA-HUM-227) that post-dates 500 cal BCE (Hildebrandt 2007:91-92).

The *Gunther Pattern (post cal. 500 CE)* on the northwest coast of California is represented by a more elaborate and marine-focused assemblage of artifacts as compared with earlier patterns, including Gunther barbed projectile points, concave-based points that were used in composite harpoons, and ground and polished stone artifacts. Pestles, clubs, stone adze handles, mauls, and steatite bowls, along with fishing gear such as net sinkers, hooks, and harpoons, are common. Marine-focused faunal collections provide further evidence of a developing coastal lifeway (Hildebrandt 2007:93-94).

The Wiyot, who were present in the area at European contact, are thought to have entered from the Columbia Plateau ca. 900 CE. and settled directly on the coastal strip. The Yurok, their linguistic relatives, are believed to have arrived some 200 years later, again settling along the coast. They quickly became specialized and efficient marine mammal hunters (Hildebrandt 1981), and spread along the coast, eventually displacing or assimilating some of the Wiyot population (Fredrickson 1984).

The settlement of the coast by the Yurok and Wiyot is thought to be archaeologically manifested by Gunther Pattern artifacts, first defined by Loud's (1918) excavation of CA-HUM-67 at Humboldt Bay. This was the former Wiyot village of *Tolowot*, and the site of the Gunther Island massacre in 1860 (Fredrickson 1984). Further excavation was completed at the site by an amateur archaeologist, Dr. H. H. Stuart. Archaeologists at the University of California at Berkeley were able to analyze some of his collections (Heizer and Elsasser 1964) and Hughes (1978) performed X-ray fluorescence analysis of the obsidian found at the site. Other Gunther Pattern sites include CA-HUM-118, a Yurok seasonal camp at Patrick's Point, CA- HUM -169 and CA- HUM -129, historic Yurok villages, and CA- HUM -174, a Yurok ceremonial site on an offshore rock (Fredrickson 1984).

3.5.3.2 Ethnographic Period

At the time of arrival of Euroamericans in the region, the Humboldt Bay area was the home of the Wiyot, an Algonquian-speaking group within the greater northwestern California subculture area defined by Kroeber (1925). Wiyot territory extended eastward from the Pacific to the crest of the first mountain range some 15 to 20 miles inland, bounded on the north by the Little River and to the south by the Bear River (Elsasser 1978). Their territory thus included Humboldt Bay and many miles of ocean front and the lower courses of rivers, as well as inland redwood forest.

Subsistence practices reflected coastal and estuary habitats where fishing, mollusk collecting, and sea mammal hunting were all important activities. Much of Wiyot technology revolved around these practices as well, including redwood dugout canoes, weirs, platforms, traps, nets, spears, and harpoons. Although the redwood belt was not prime oak habitat, acorns were an important prehistoric food source, as were berries.

Structures were substantial, rectangular, split-redwood plank affairs often occupied by two or more families. The village often had a single sweathouse. Clothing was made from deerskins and woven rabbit skins, and women's aprons were made from bark, often strung with nuts. Twined basket hats were worn.

The Wiyot were normally patrilineal and patrilocal, organized into tribelets. The Wiyot partook to some degree in the elaborate Northwest California World Renewal rituals.

The foregoing synthesis is relatively bare since the Wiyot suffered greatly at the hands of the Euroamericans due to the highly favorable coastal area they occupied. In spite of initially good relationships with local fishermen and farmers, a series of atrocities decimated their numbers in the 19th century (Heizer and Almquist 1971; Loud 1918). The most famous of these, the massacre at Gunther (or Indian) Island, took place in 1860 during World Renewal ceremonies at the village of *Tuluwat*, and survivors were scattered to the Klamath River, Hoopa, and Smith River Reservations. By 1860, the population had shrunk from 1,000 to 200; by 1910, only 100 local people were left. Today the Wiyot, now more than 500 strong, occupy 88 acres at Table Bluff.

3.5.3.3 Historical Period

Post-Contact history for the State of California can be generally divided into three periods: The Spanish Period (1769–1822), the Mexican Period (1822–1848), and the American Period (1848–

present). The Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769–1822) Spanish explorers made sailing expeditions along the coast of southern California between the mid-1500s and mid-1700s. In search of the legendary Northwest Passage, Juan Rodríquez Cabríllo stopped in 1542 at present-day San Diego Bay. With his crew, Cabríllo explored the shorelines of present Santa Catalina Island as well as San Pedro and Santa Monica Bays. Much of the present California and Oregon coastline was mapped and recorded in the next half-century by Spanish naval officer Sebastián Vizcaíno. Vizcaíno's crew also landed on Santa Catalina Island and at San Pedro and Santa Monica bays, giving each location its long-standing name. The Spanish crown laid claim to California based on the surveys conducted by Cabríllo and Vizcaíno (Bancroft 1885; Gumprecht 1999).

Ocean exploration of the northern coast of California dates to the sixteenth century and includes a diverse group of Spanish, Russian, and British ships. While the first recorded Humboldt landing at Trinidad by the Spanish did not occur until 1775, maps from Spanish trading voyages referenced the area as early as 1587 (Hoover et al. 2002). Concerned with these activities, George Vancouver was sent out by the British in 1792 to investigate the extent of Spanish possessions along the coast. The first entrance to Humboldt Bay occurred soon after by Jonathan Winship, an American employed by the Russian-American Company. As part of a fur-trading exhibition, Winship and a group of Aleut Indians entered the bay while searching for sea otters, which he named Bay of Indians due to the numerous native villages located along the shore (Hoover et al. 2002). Although this marked the first European or American entry into Humboldt Bay, the region would remain relatively unchanged into the following decades.

More than 200 years passed before Spain began the colonization and inland exploration of Alta California. The 1769 overland expedition by Captain Gaspar de Portolá marks the beginning of California's historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July of 1769, while Portolá was exploring southern California, Franciscan Fr. Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823.

Mexican Period (1822–1848). A major emphasis during the Spanish Period in California was the construction of missions and associated presidios to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns, but just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles). Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955).

Throughout most of California, extensive land grants were established during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities. In Humboldt County however, no land grants were awarded, and the area would not experience significant changes until the mid-nineteenth century.

American Period (1848–Present). With the discovery of gold in Coloma, California in 1848, Americans flocked to California and began exploring both easily accessed and more remote regions, including the northern Pacific Coast. The first of this influx to reach the Humboldt Bay was Dr. Josiah Gregg, who set out with a party to trace the Trinity River from its source to its mouth. First reaching the Trinidad Head on December 7, 1849, they turned south and soon reached the bay that Winship had recorded some 40 years earlier. The first ships arrived the following spring, with numerous Americans embarking on trips inland to gold-mining districts on the Klamath, Salmon, and Trinity rivers (Van Kirk 1999). One of the first ships was the Laura Virginia, bringing members of the Laura Virginia Association. They quickly founded a small townsite, known as Warnersville. Other towns quickly followed, including Humboldt City, Bucksport, Union, and Eureka (Irvine 1915).

While most of these small communities were ultimately unsuccessful, several managed to survive and grow, including Uniontown (Arcata) and Eureka. Uniontown was commercially successful due to its close proximity to the overland mining trails, but as the region's economy shifted towards lumber manufacturing, Eureka was poised to become the "metropolis of Humboldt Bay" (Hoover et al. 2002:105); a future that was secured after the City became the seat of the new County of Humboldt in 1856.

In 1853, Fort Humboldt was established to ease tensions between the local indigenous population and the influx of miners and settlers flooding into the area as a result of the gold rush. The Fort also served as a supply headquarters for the region, which included Forts Bragg and Wright in northern Mendocino County, and Fort Ter-Waw in Klamath and Camp Lincoln near present-day Crescent City. In the years leading up to the Civil War, soldiers at Fort Humboldt witnessed numerous battles between settlers and Indians, including the Indian (nèe Gunther) Island Massacre of 1860, in which from 80 to 250 Wiyot men, women, and children were murdered.

Although most settlers came to the region in search of gold, it didn't take long for them to recognize that the region's wealth truly lay in its other natural resources. Logging soon became the County's primary revenue source, with farming, shipping, shipbuilding, and salmon fishing also becoming strong industries. Initially, the manufacture of lumber was confined to pine, spruce, and fir, as the early lumberman did not have the means to handle and saw the tremendous size and weight of redwood trees. But with the arrival of more advanced equipment by ship in 1852, the first successful redwood sawmills were soon in operation. As Gold Rush San Francisco exhausted the supply of lumber in the Bay Area, demand for redwood quickly grew and lumber merchants moved toward the bountiful forests of California's north coast (Buckley 1997). Humboldt Bay emerged as the best harbor for ships to export redwood cargo to the south due to its deep-water channel, and a number of settlements began to emerge along the bay as individuals and companies came to the region in ever-increasing numbers (Palais and Roberts 1950).

Industry and Infrastructure. As lumber entrepreneurs like John Vance expanded operations and needed to transport logs to the mill from increasingly further distances. Vance's solution was a railroad named Vance's Mad River Railroad, which was approximately 12.5 miles long with small branch spurs and ran from Mad River Sloughs to Vance's Mill. By 1877, the railroad extended to Brocks. In December 1891, Vance transferred the railroad to his nephews, who then sold it in 1892 to the Humboldt Bay and Trinidad Lumber & Logging Company for $200,000. The new owners, in an effort to expand, incorporated the Eureka & Klamath River Railroad in 1896. Several miles were added to the line: 17.55 miles in 1897, and almost 4 miles in 1902; and ownership changed hands once again to the Hammond Lumber Company. In 1903, Southern Pacific's Vice President, H.E. Huntington, purchased the company's entire capital stock (5,000 shares) for $1,150,000. At the same time, the railroad was leased for sole operation to the Oregon and Eureka Railroad Company. Vance's railroad covered the area north of Eureka and was now in the hands of Southern Pacific. Now the lumber tycoons looked south.

South of Eureka, movement of forest products from the Eel River Valley was by boat and/or wagon. The Eel River was only navigable for a short distance, and then boats were forced to go out to sea for a few miles before entering Humboldt Bay and Eureka. In 1882, the Eel River and Eureka Railroad Company were incorporated, and plans included a tunnel under Table Bluff, which would provide a faster route to Eureka. Headquarters for the railroad were established and included yards, an engine house, and shops to service equipment. By 1884, two new engines and 15.11 miles of the railroad was ready to operate between South Bay and Burnells. In order to transport lumber and equipment from South Bay to Eureka, the railroad placed a stern paddle wheel steamer in service until the 6.31-mile leg of the track was opened in 1885.

The Pacific Lumber Company incorporated the Humboldt Bay & Eel River Railroad in 1882 in order to build from Humboldt Bay to a proposed sawmill on the Eel River. There was some expansion: in 1898, 5.58 miles were built south to Elinor, and another 2.42 miles to Camp 9 in 1902. Still at this time northwestern California had no railroad connection with the rest of the US by which it could move its massive wealth in natural resources to market. Many railroad networks probably wanted to exploit this last frontier; however, it was the Southern Pacific and Santa Fe, or railroads controlled by them, that ultimately penetrated the region. Jointly in 1907, the Southern Pacific and Santa Fe railroads formed the Northwestern Pacific Railroad. By 1914, the rail ran from the Marin County ferry terminals across the Golden Gate from San Francisco, northward to California's northwest redwood coastal ports.

Aided by this increased mobility, Eureka became the cultural and commercial hub of the region by the 1880s with the continued growth of the lumber and shipping industries. The City's infrastructure grew as tidal marshes and water ways were filled for new development, dikes and levees were constructed for logging railroads and agriculture, and wooden sidewalks, gas streetlights and a water works were installed (Heald et al. 2004). As the commercial core of the City grew, residential development expanded outward to the east and south in the 1890s with the tracts of modest homes for mill and wood workers. In 1894, Bartlin Glatt created the first subdivision in Humboldt County, deeding 20 acres to the City for Forest Park (Sequoia Park [Heald et al. 2004:12]). Additionally, this period saw the construction of some of the region's grandest examples of architecture, including the Carson House (1884), St. Bernard's Church (1885), and Vance Hotel (1892).

Twentieth Century Growth. The population of Eureka grew in the early twentieth century, as the "Queen City of the Ultimate West" entered a new period of prosperity. While the lumber industry remained the primary contributor to the local economy following consolidation by a number of large companies, dairy farming and other agricultural operations became increasingly important. Eureka's growth was supported by the development of new transportation routes, connecting the remote region to the rest of California and the country through the completion of the Northwest Pacific Railroad (1914) and Highway 101 (1924-26). In addition to the continued outward push of residential development, a number of civic improvements also occurred during this time, including the construction of Carnegie Library and landscaping of Forest Park (by now renamed Sequoia Park) with picnic grounds, a pond, and zoo (Heald et al. 2004:13).

Similar to the rest of the country, Eureka was impacted by the Great Depression and while residential development decreased, some civic projects were undertaken during this period. These included projects such as the Art Deco-style Municipal Auditorium (1935) and the Streamline Moderne Eureka Theater (1937). Another recreational facility developed at this time was Redwood Acres, which was established in 1937 and provided the residents of Humboldt County with a fairground east of Eureka in Myrtletown. Historic aerial photographs show that by 1940, the facility included a large horse-racing track, a covered grandstand, eight stables, and a number of ancillary buildings. By the early 1940s, war prioritization restricted the construction of private buildings and little development occurred until the end of World War II.

Following the war, Eureka and Humboldt County experienced an economic boom as unprecedented residential and commercial development throughout the country resulted in an increased demand for construction materials. Local building and construction also flourished, with more than $5,000,000 dollars expended in 1949, over $1,000,000 more than ever before (City of Eureka 2004). Much of this development was residential, with new housing tracts built in areas south and east of Eureka. This development included the unincorporated areas of Cutten and Myrtletown, which were transformed into suburban neighborhoods seemingly overnight.

PG&E. The electricity industry quickly developed in Humboldt County in response to rapid growth of the region in the late nineteenth and early twentieth centuries. A number of small electric companies were established adjacent to lumber mills to serve their small surrounding communities, including the Humboldt and Electric Light and Power Company, Arcata Light and Power Company, and the Humboldt Milling Company, a predecessor of the Fortuna Lighting

Company (The Humboldt Historian 1985:9). Many of these companies merged overtime and by 1911, Western States Gas and Electric Company was the primary provider of electricity in Humboldt County (Linton 1969).

Western States Gas and Electric Company would continue to expand and develop, until it was eventually acquired by PG&E in 1927. PG&E was initially founded in 1852 as the San Francisco Gas Company, which rapidly grew in the third-quarter of the nineteenth century through the acquisition of its competition. Through a number of mergers, the company became the San Francisco Gas Light Company, then the San Francisco Gas and Electric Company, and finally the Pacific Gas and Electric Company following its incorporation in 1905 (Lipton 1969:24). This ongoing consolidation led to the acquisition of the Western Sates Gas and Electric Company and continued in Humboldt County until the 1940s, when PG&E eventually gained complete control of the electric industry in the region.

The demand for electricity grew exponentially after World War II as Humboldt County experienced a significant population increase. Additionally, the development of new pine and fir timber sawmills created the further need for electrical power (Lipton 1969:27). With little time to meet this demand, PG&E improvised with the adaptation of the Donbass III, an American-built oil tanker that had broken in half during a storm of the Aleutian Islands. PG&E purchased the stern half of the ship, which contained steam boilers, a turbine, and generators and soon had a new plant that was able to produce 4,800 kilowatts (kW) (Crichton 1986). In support of this new plant, PG&E also developed a number of high-voltage power lines and substations, including two 110 kV and two 60 kV lines and Humboldt Substation of Mitchell Heights Drive (Lipton 1969:29).

While the Donbass plant helped PG&E meet the immediate power needs of postwar Humboldt County, the continued growth of the region created additional demand. To meet these needs, PG&E began development of two oil-burning plants south of Eureka in Field’s Landing (Humboldt Bay Power Plant), which would integrate elements of the existing transmission infrastructure with new lines extending service greater distances. Construction was performed in two phases, completed in 1956 (Unit 1) and 1958 (Unit 2), and included two fossil fuel plants, oil storage tanks, a 60-kV switchyard, and associated facilities, such as a warehouse, pump house and rail spur from the adjacent Northwestern Pacific Railroad. The development of these two units added 107,000 kW to the system (Lipton 1969).

Anticipating additional demand, PG&E constructed a third unit in 1963, which was a nuclear power that was capable of producing 50,000 kW and was the first such plant to be developed by PG&E (Lipton 1969:42). In the early 1970s, geologists determined that the Little Salmon Fault was still an active earthquake fault contradicting previous studies. Unit 3 was shut down in 1976 for routing refueling and seismic retrofit work, and it was during this time that the Three Mile Island incident occurred in Pennsylvania. As a result, the Nuclear Regulatory Commission created new standards for nuclear power plants, which required compliance prior to licensing. PG&E decided not to proceed with this process and announced its intention to decommission Unit 3 in 1983. Active decommissioning started in 2009 and demolition of Unit 3 is slated for completion in 2019. With the shutdown of Unit 3 in 1976, two trailer-mounted power plants were placed at the plant to produce additional electricity. These four units would operate until

2010, when Units 1 and 2 were decommissioned after 54 and 52 years of service respectively. They have since been demolished and replaced by ten new units of the Humboldt Bay Generating Station, which became operational in 2010 (PG&E 2012).

The Humboldt Bay-Humboldt #1 60 kV (HB-H #1 line), Humboldt Bay-Humboldt #1 115 kV (HB-H #1 115kV line), Humboldt Bay-Humboldt #2 60 kV (HB-H #2 line), and Humboldt Bay-Eureka 60 kV (HB-E line) power lines extend from the industrial shoreline of Humboldt Bay, through the periphery of Eureka to bolster PG&E's Eureka-area electrical capacity. The lines serve as operational linkages between Humboldt Bay Substation (adjacent to Humboldt Bay Generating Station, formerly the Humboldt Bay Power Plant), and Humboldt, Eureka E, Eureka A, and Harris substations, providing locally generated energy supplies to the regional grid. The utilitarian alignments are reflective of the intensive infrastructural development of energy capacity in Eureka and Humboldt County in the mid-twentieth century, as PG&E sought to keep pace with the region's industrial expansion and population growth during the period.

The HB-H #1 line and the HB-H #1 115kV/HB-H #2 line alignments were developed in 1955 and were designed to link the newly constructed Unit 1 of the Humboldt Bay Power Plant to PG&E's primary Eureka distribution and transmission step-down substation, Humboldt Substation. The HB-E line was completed in 1958 to link the new Unit 2 to Eureka's newly completed urban substation. While PG&E's energy generating operations at the Humboldt Bay site have evolved markedly over the half-century since the development of these four lines, the power lines continue to serve this basic operational role, linking the shoreline generation facility to PG&E's service grid. In this role, the HB-H #1 line, Humboldt Bay-Humboldt #1 115 kV power line/HB-H #2 line, and the HB-E line provide a basic infrastructural service that serves existing demand and ongoing development in the Eureka region (Allen and Walker 2018).

3.5.3.4 Record Search Results

The CHRIS records searches identified 20 previously recorded historic resources within 0.25 mile of the PAL. Of these 20, three (McKay & Company Ryan Creek Railroad/P-12-001987; Bucksport & Elk River Railroad Grade/CA-HUM-1313H; and an agricultural complex at 5625 Elk River Road/ P-12-003225) are within the PAL and four (Lorensen House/ P-12-003080; Lorensen Garage/Workshop/ P-12-003081; Lorensen Dairy Barn/ P-12-003082; Cluver Property and outbuildings at 815 Pine Hill Road/P-12-003216) are immediately adjacent to the PAL. No prehistoric cultural resources were identified in the PAL. Table 3.5-3 below outlines the recorded cultural resources within, or immediately adjacent to the PAL. Evaluations of these resources have found that none are eligible for listing on either the NRHP or the CRHR. Additional detail regarding these findings is provided in the Cultural Resource Inventory, Survey, and Evaluation Report for the Humboldt Bay-Humboldt #1 60 kV Reconductoring Project (Quercus January 2019) (Cultural Report), provided separately to CPUC staff.

Table 3.5-3: Previously Recorded Cultural Resources Within or Adjacent to the PAL

Primary Number	Trinomial	Resource Description	Historic Properties Listing	Recorded by and Year	Proximity to PAL
P-12-001987	—	McKay & Company Ryan Creek Railroad	Unlisted	Templeton 2002, 2005	**Within**
P-12-002061	CA-HUM-1313H	Bucksport & Elk River Railroad Grade	Unlisted	Griesbach 2007; Browning 2010; Distefano 2012	**Within**
P-12-003080	—	Lorensen House	Unlisted	Van Kirk, S. 2002	Adjacent
P-12-003081	—	Lorensen Garage/Workshop	Unlisted	Van Kirk, S. 2002	Adjacent
P-12-003082	—	Lorensen Dairy Barn	Unlisted	Van Kirk, S. 2002	Adjacent
P-12-003216	—	815 Pine Hill Road, Cluver Property, Cluver House and Cluver Outbuildings	Unlisted	Van Kirk, S. 2002; T. Hildebrandt, D. Garvey Far Western Anthropological Research Group, Inc. 2014	Adjacent
P-12-003225	—	5625 Elk River Road agricultural complex	Unlisted	T. Hildebrandt, D. Garvey 2014	**Within**

3.5.3.5 Buried Site Sensitivity Analysis Findings

Landforms that pre-date the Holocene have little or no potential to contain buried sites because there were few, if any, people yet present in the region. Previous studies have shown that known prehistoric sites tend to be located within 200 meters (656 feet) or less of a known stream or other water source. Conversely, most Holocene-age depositional landforms (e.g., alluvial fans and floodplains) have a general "geologic potential" to contain buried sites, as they were formed after the arrival and occupation of the region by prehistoric people. Thus, Holocene-age terrestrial deposits located within 200 meters of a historic-era bay or stream are considered to have an elevated (i.e., high) potential to contain buried sites (Meyer et al. 2011).

Based on review of geologic maps (Mclaughlin et al n.d.) coupled with refined and established archaeological sensitivity models (Meyer et al. 2011), the PAL is situated generally on a landform identified as Latest Pleistocene to Holocene stream terrace deposits and a small pocket of Quaternary alluvium along the Elk River and Martin Slough. Latest Pleistocene to Holocene stream terrace deposits are considered to contain a low to moderate sensitivity for containing cultural deposits if the locations meet the criteria of being within 200 meters of a historical water source. That sensitivity is reduced to low if a location is farther than 200 meters from a historical water source. Latest Pleistocene to Holocene stream terrace deposits are generally not considered highly sensitive given the dearth of archaeological sites that have been identified from this time period. Additionally, while Quaternary alluvium adjacent to historical sources of water is considered highly sensitive for the presence of buried archaeological deposits, the limited excavation footprint associated with the project and the fact that only a handful of pole replacement locations are situated on a Quaternary landform identified as being within 200 meters of a historical source of water minimizes the potential for encountering a buried deposit to moderate or low.

3.5.3.6 Results of Native American Coordination and Local Historical Group Coordination

As a result of the coordination efforts with local historical groups/local governments, two responses were received:

- On June 6, 2012, Ben Brown from the Clarke Historical Museum responded by telephone to state that they have no comments on the project.
- On June 19, 2012, Don Andersen of the Ferndale Museum responded by telephone to state that he had no comments or concerns about the project.

Follow-up phone calls/e-mails were made to the remaining historic group contacts on June 4, 2012, and June 18, 2012. No additional responses have been received to date.

On May 2, 2012, and December 4, 2017, the NAHC provided a list of local Native American representatives who may have an interest in the proposed project. The 2017 response from the NAHC indicated that a Native American cultural site was present in the PAL and as such the Wiyot tribe should be contacted. The NAHC also provided a list of other tribes who may have information about cultural resources within the PAL. On May 16, 2012, and in January 2018, informational letters and/or emails were sent to each of the tribal representatives advising them about the project and soliciting their input. Tribal groups indicated in the list below were contacted by phone or email or regular mail in cases where an email address was not included in the NAHC-provided contact list, and if a response was not received within a few weeks, follow-up phone calls were made.

Table 3.5-4 contains a Native American Contact Log with additional detail regarding both the 2012 and 2017-2018 coordination efforts.

Table 3.5-4: 2012 and 2017-2018 Native American Contact Log

NAHC-provided Contact	Coordination Efforts	Results of Coordination Efforts
Bear River Band of Rohnerville Rancheria 27 Bear River Drive Loleta, California 95551 Contact: Len Bowman, Jr., Chairperson	**5/16/12:** Letter sent via U.S. Mail. **6/4/12:** Left voice message **6/19/12:** Spoke with Mr. Bowman's assistant and she indicated that Ms. Collins' response was representative of the tribe.	No further action required.

Table 3.5-4: 2012 and 2017-2018 Native American Contact Log

NAHC-provided Contact	Coordination Efforts	Results of Coordination Efforts
Bear River Band of Rohnerville Rancheria 27 Bear River Drive Loleta, California 95551 Contact: Erika Collins, THPO	**5/16/12:** Letter sent via U.S. Mail. **6/4/12:** Left voice message **5/29/12:** Ms. Collins responded via letter – they would like to have a site walk- they have knowledge of resources within the area. **12/07/2017-12/14/2017:** Ms. Erika Collins was contacted by phone and email several times regarding this project and AS-1. Erika Cooper (formerly named Erika Collins) is the THPO for the Bear River Band of the Rohnerville Rancheria and she represents the Tribe. Ms. Cooper asserted after receiving updated mapping and such that "...while there are a few resources nearby, it doesn't like anything is close enough to be of great concern. So, in short I do not have any further concerns about the project, either the overall project area or 'AS-1'."[1]	No further action required. (see more information below).
Bear River Band of Rohnerville Rancheria 27 Bear River Drive Loleta, California 95551 Contact: Edwin Smith, Environmental Coordinator/Cultural	**5/16/12:** Letter sent via U.S. Mail. **6/4/12:** Left voice message **6/19/12:** Left voicemail.	No further reaction required.
Blue Lake Rancheria P.O. Box 428 Blue Lake, California 95525 Contact: *Claudia Brundin, Chairperson*	**5/16/12:** Letter sent via U.S. Mail. **6/4/12:** Spoke with her executive assistant and she referred me to Janet Eidsness. Spoke with Ms. Eidsness and she was going to check her office and respond back. **6/4/12:** Ms. Eidsness responded via email to Steven Treffers that there are no known Wiyot sites in the project area; however, it does cross areas that are sensitive (slough margins, etc.) **12/07/2017-12/14/2017:** Ms. Ms. Eidsness was contacted several times over the phone and via email. Ultimately, she deferred to Ms. Cooper and to Mr. Hernandez, both of whom stated that after reviewing the project, they did not have any concerns.	No further reaction required.

[1] AS-1 is the location of a purported archaeological site in the PAL. This site was subject to archaeological testing. That testing is documented in the Browning 2017 report and was determine not to be cultural in nature.

Table 3.5-4: 2012 and 2017-2018 Native American Contact Log

NAHC-provided Contact	Coordination Efforts	Results of Coordination Efforts
Blue Lake Rancheria P.O. Box 645 Blue Lake, California 95525 Contact: Diane Holliday	**5/16/12:** Letter sent via U.S. Mail. **6/4/12:** Left voice message **6/19/12:** Left voicemail.	No further action required.
Wiyot Tribe 1000 Wiyot Drive Loleta, California 95551 Contact: Ted Hernandez, Chairperson	**5/16/12:** Letter sent via U.S. Mail. **6/4/12:** Left message with secretary **6/18/12:** Left voicemail. **12/07/2017-12/14/2017:** Mr. Hernandez was contacted by phone and email several times regarding the project as well as regarding XPI testing to occur in the recorded location of the purported archaeological site. A tribal representative of the Wiyot was present during testing at the alleged, and after the completing of testing and a review of the project as a whole, Mr. Hernandez stated that the Tribe did not have any concerns regarding the project.	No further action required.
Wiyot Tribe 1000 Wiyot Drive Loleta, California 95551 Contact: Andrea Davis, Environmental Coordinator	**5/16/12:** Letter sent via U.S. Mail. **6/4/12:** No longer works there- see below	No further action required.
Wiyot Tribe 1000 Wiyot Drive Loleta, California 95551 Contact: Helene Rouvier, Tribal Historic Preservation Officer	**5/16/12:** Letter sent via U.S. Mail. **6/4/12:** No longer works there-see below	No further action required.
Wiyot Tribe 1000 Wiyot Drive Loleta, California 95551 Contact: Brian Mead, Administrator	**6/4/12:** Letter sent via Internet **6/19/12:** Letter was transferred to Monique (the new cultural person) and she is going to look for the letter and get back to us. **6/19/12:** Spoke with Monique and she is sending us a letter.	No further action required.
Round Valley Indian Tribes of the Round Valley Reservation James Russ, President and D. Hutt 77826 Covelo Road Covelo, CA 95428	**01/16/2018**: Emailed project information. **01/30/2018**: Emailed project information.	No response received to date.
Yurok Tribe of the Yurok Reservation Thomas O'Rourke. Chairperson, PO Box 1027 Yurok, Klamath. CA 95548	**01/16/2018**: Emailed project information. **01/30/2018**: Left message regarding project.	No response received to date.

Table 3.5-4: 2012 and 2017-2018 Native American Contact Log

NAHC-provided Contact	Coordination Efforts	Results of Coordination Efforts
Yurok Tribe of the Yurok Reservation Robert McConnell. THPO HC 67 P.O. Box 196. Highway 9 Hoopa, CA 95546	**01/16/2018**: Emailed project information. **01/30/2018**: Left message regarding project.	No response received to date.
Yurok Tribe of the Yurok Reservation NAGPRA Coordinator P.O. Box 1027 Yurok, Klamath CA 95548	**01/16/2018**: Emailed project information. **01/30/2018**: Left message regarding project.	No response received to date.
Cher-Ae Heights Indian Community of the Trinidad Rancheria Garth Sundberg Sr. Chairperson P.O. Box 630 Trinidad, CA 95570-06	**01/18/2018**: Letter mailed **01/30/2018**: PG&E CRS spoke with THPO, Rachel Sunberg, she stated that the project location was outside of her tribal sphere of concern.	No further action required.
Tsnunawe Council Paul Ammon, Chairperson P.O. Box 373 Salver, CA 95563	**01/16/2018**: Emailed project information. **01/30/2018**: Left message regarding project.	No response received to date.
Big Lagoon Rancheria Virgil Moorehead, Chairperson P.O. Box 3060 Trinidad, CA 95570	**01/16/2018**: Emailed project information. **01/30/2018**: Left message regarding project.	No response received to date.
Hoopa Valley Tribe Ryan P. Jackson, Chairperson P.O. Box 1348 Hoopa, CA 95546	**01/18/2018**: Letter mailed. **01/30/2018**: PG&E CRS spoke with THPO, Keduescha Lara-Colegrove, she asked for project information to be emailed to her and it was emailed to her on 01/30/2018.	No response received to date.
Karuk Tribe Russell Atteberry, Chairperson; P.O. Box1016 Happy Camp, CA 96039	**01/18/2018**: Letter mailed. **01/30/2018**: PG&E CRS spoke with Dr. Alex Watts-Tobin, the Karuk Tribe's THPO and lead archaeologist and he asked for the project information to be emailed to him and it was emailed to him on 01/30/2017.	No response received to date.

Mr. Ted Hernandez, a representative of the Wiyot Tribe, was coordinated with extensively to address the new cultural site identified by NAHC (AS-1). At the tribe's request, a representative of the Wiyot Tribe was present on December 8th, 2017, when Browning Cultural Resources, Inc. performed extended phase-1 subsurface testing in the PAL (Browning Cultural Resources, Inc. 2017). The testing established that the site initially identified as a cultural deposit was a non-cultural deposit of shell. As indicated in Table 3.5-4, at the conclusion of the coordination, Mr. Hernandez determined that the Wiyot Tribe did not have any concerns regarding the project. Ms. Eidsness, a representative of the Blue Lake Rancheria deferred to Ms. Collins and Mr.

Hernandez regarding the project and potential concerns regarding the project. No other tribal representative expressed concerns regarding the proposed project.

In sum, coordination with tribes has taken place in two phases, one in 2012 and the other in 2017-2018. Coordination took the form of phone calls, notification letters and emails. In the course of those efforts, some concerns were initially expressed by tribal representatives and the NAHC. However, after coordinating with tribal representatives as well as conducting archaeological testing in conjunction with the Wiyot, concerns regarding the project's potential to impact Native American sites were assuaged. PG&E is not aware of any other tribal concerns regarding the project.

3.5.3.7 Summary of Findings

A total of nine cultural resources were identified within the PAL as a result of project background research, records search, Native American outreach, and intensive pedestrian survey efforts. A total of six historic-period cultural resources were identified during the intensive-level surveys of the PAL. In addition, three previously recorded cultural resources (Ryan Creek Railroad/P-12-1987, Elk River Railroad Grade/CA-HUM-1313, and an agricultural complex at 5625 Elk River Road/P-12-3225) were also identified in the PAL.

The newly identified resources include the (1) HB-H #1 line, the (2) HB-H #1 115kV line/HB-H #2 line, the (3) HB-E line, (4) Redwood Acres, (5) the Spiegelberg Homestead, and (6) a segment of the Northwestern Pacific Railroad. Of these, the archaeological component of the Spiegelberg Homestead is assumed eligible for listing, while the others have been found ineligible for listing on the NRHP nor the CRHR, as summarized below and described further in the Cultural Report, filed separately with the CPUC.

The investigation did not include a full evaluation of the archaeological constituent of the Spiegelberg Homestead as the artifact concentration is located outside of (but adjacent to) the PAL. This area will be flagged as an avoidance area pursuant to APM CUL-2) to ensure no inadvertent impacts will occur (see impact discussion below). The built environment component of the Spiegelberg Homestead is found to be ineligible for listing on either the NRHP or the CRHR, as described further in the Cultural Report filed separately with the CPUC.

None of the three previously recorded cultural resources (Ryan Creek Railroad/P-12-1987, Elk River Railroad Grade/CA-HUM-1313, and an agricultural complex at 5625 Elk River Road/P-12-3225), revealed during the CHRIS records search are considered eligible for listing on either the NRHP nor the CRHR as discussed further in the Cultural Report filed separately with the CPUC. No prehistoric sites were identified during the field inventory, and the PAL is considered to have a moderate to low potential to encounter a buried archaeological sites.

Table 3.5-5 below outlines the previously undocumented cultural resources inventoried in the PAL as a result of the current investigation.

Table 3.5-5: Resources Newly Inventoried

Resource Name	Built Year	NRHP/CRHR Eligibility
Northwest Pacific Rail Spur	1880	Not eligible
Humboldt Bay-Humboldt #1 60 kV Line	1955 and 1961	Not eligible
Humboldt #1 115kV Line/Humboldt #2 60kV Line	1955 and 1961	Not eligible
Humboldt Bay-Eureka 60 kV	1958	Not eligible
Redwood Acres	1937	Not eligible
Spiegelberg Homestead	Pre-1855	Portions assumed eligible, portions not eligible

3.5.3.8 Paleontological Resources

Geologic Units and Paleontological Sensitivity

Paleontologists reviewed the geologic mapping by Dibblee and Minch (2008) and McLaughlin et al. (2000) to determine areas of paleontological sensitivity. The PAL is immediately underlain by late Miocene- to early Pliocene-age Price Creek Formation (Tppc), Pleistocene-age Centerville Formation (Qc), and Holocene-age alluvial gravel (Qa). The paleontological potential of each geologic unit possibly impacted by ground-disturbing activities, either at the surface or at depth, is discussed below.

Price Creek Formation. The Price Creek Formation, also known as the lower member of the Wildcat Series or the Wildcat Formation, consists of late Miocene- to early Pliocene-age marine siltstones and shale. The Price Creek Formation is mapped at the surface within the PAL in the western-most and eastern-most portions.

The Price Creek Formation is known for its marine fossils, particularly mollusks and foraminifera. According to the UCMP online fossil locality database, numerous fossil localities have been recorded from the Price Creek Formation from Humboldt County, including foraminifera, gastropods, bivalves, and echinoids (UCMP 2018b). The Paleobiology Database (PBDB) contains numerous invertebrate fossils from the Wildcat Series, which includes the Price Creek Formation mapped within the PAL, recorded immediately south of Humboldt Bay, which has yielded gastropods, bivalves, and scaphopods (PBDB 2018; Grant and Gale 1931).

Based on the lithology and fossil occurrences, the Price Creek Formation has moderate paleontological potential (PFYC 3) using BLM (2016) guidelines.

Centerville Formation. The Centerville Formation is Pleistocene-age and consists of non-marine older alluvial sediments and has been also been mapped as Pleistocene-age older alluvium. Within the bounds of the PAL, the Centerville Formation is mapped throughout its entirety but is predominantly mapped in its central and western portions.

The UCMP (2018a) contains one fossil record from the Centerville Formation in Humboldt County, which yielded unclassified invertebrate taxa fossils. Because the Centerville Formation has been classified as Pleistocene-age older alluvium by some researchers, localities yielding fossils from unnamed Pleistocene-age deposits were also assessed in the UCMP online fossil locality database. According to the UCMP (2018a), fossil localities from unnamed Pleistocene-age deposits in Humboldt County have yielded plants, bivalves, gastropods, arthropods, mammoths, mastodons, and bison. The PBDB (2018) contains Pleistocene-age vertebrate fossils from unnamed deposits recorded from the Centerville Beach and Moonstone Beach areas, located immediately west of the City of Eureka, which have yielded mammoth, otter, and vole.

The Centerville Formation is considered to have moderate paleontological potential (PFYC 3). In accordance with the guidelines for implementing the PFYC system (BLM 2016), the paleontological potential was assigned to the entirety of the Centerville Formation. However, the presence of three fossil localities from similar sediments within the immediate vicinity (500 feet) of the project (see Paleontological Records Search Results; UCMP 2018a) does indicate that the potential of the formation within this specific area may actually be higher (e.g., PFYC 4).

Alluvial Gravel. Deposits of Holocene-age alluvial gravel are mapped within the PAL and consist of floodplain and stream channel alluvial gravel, sand, and clay, recently dissected by currently active stream channels. Alluvium is mapped throughout the entirety of the PAL but is predominantly mapped at the surface in the west near the Humboldt Bay and along active channels in the east.

Holocene-age alluvial gravel is generally unconsolidated, undissected (except in currently active stream channels), and less topographically developed than older units. These Holocene-age (less than 11,000 years old) sediments are typically too young to contain fossilized material (Society of Vertebrate Paleontology 2010), but they may overlie sensitive older (e.g., Miocene- to Pleistocene-age) deposits at variable depth. Holocene-age alluvial gravel is therefore assigned low paleontological potential (PFYC 2) at the surface using BLM (2016) guidelines.

Paleontological Records Search Results

According to the UCMP museum records search results, six fossil localities have been recorded within a 2-mile buffer of the PAL, three of which have been recorded within 500 feet of project component (UCMP 2018a). One of these three localities is UCMP V68155 from Buhne's Point, which yielded a bison hand bone, described by UCMP as recorded from undifferentiated Pleistocene-age sediments (UCMP 2018a). The surface of the discovery area is Holocene-age alluvial gravel; however, the fossil likely came from the underlying Centerville Formation, or from sediments similar to those of the Centerville Formation. The second locality mapped within 500 feet of the PAL is UCMP B7138, which is from an area mapped as the Pleistocene-age Centerville Formation and Holocene-age alluvial gravel. The third locality within 500 feet of the PAL is UCMP IP2368 from Redwood Acres, which yielded fossil invertebrates of various taxa from undifferentiated Pleistocene-age sediments, which is equivalent to the Centerville Formation.

The remaining UCMP localities are greater than 500 feet from the PAL include UCMP V65218, located along the Humboldt Bay shoreline, which yielded a mammoth molar from undifferentiated Pleistocene-age sediments – the exact location of this fossil locality is not well-defined; UCMP A6863, which yielded invertebrate fossil of various taxa from Miocene- to early Pliocene-age Price Creek Formation (referred to as the Pliocene-age Wildcat Formation by UCMP); and UCMP B7137, which yielded invertebrates from the Van Duzen Formation (referred to as the Carlotta Formation of the Wildcat Series by UCMP), which is not mapped within the PAL, but which unconformably underlies the Pleistocene-age Centerville Formation in some areas (UCMP 2018a; Dibblee and Minch 2008). The UCMP B7137 location is mapped at the surface as the Centerville Formation. Additional detail regarding these findings is provided in the Humboldt Bay-Humboldt #1 60 kV Reconductoring Project (Paleo Solutions 2018) (Paleo Report), submitted separately to the CPUC

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 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: Workers Environmental Awareness Training.*** PG&E will provide environmental awareness training on archeological resources protection. This training may be administered by the principal cultural resource specialist (CRS) as a stand-alone training or included as part of the overall environmental awareness training as required by the project and will at minimum include: types of cultural resources or fossils that could occur at the project site; types of soils or lithologies in which the cultural resources could be preserved; procedures that should be followed in the event of a cultural resource or human remain discovery; and penalties for disturbing cultural resources.
>
> **APM CUL-2: *Flag and Avoid Resources (Spiegelberg Homestead Archaeological Deposit).*** The archaeological deposit at the Spiegelberg Homestead is not in the PAL, but adjacent to it. There are no roadway or land improvements proposed in this location as use of this area is limited to access to a landing zone. Additionally, no pole replacements or installations are proposed at this location. However, to ensure no inadvertent impacts occur to this resource, a qualified archaeologist will establish exclusion flagging or safety fencing around the archaeological site.

If it is determined that construction equipment must utilize this area for access, no grading or blading or other form of ground disturbance will be permitted within this area, and surface impacts to the resource will be avoided by way of installation of temporary protection such as matting.

Although unlikely, if it is determined that the project cannot avoid impacts within the area using the protection methods identified above, additional analysis and coordination with the CPUC will be required.

APM CUL-3: Manage Unanticipated Cultural Resources Discoveries

a) Cultural Resources.
If cultural resources are inadvertently discovered during site preparation or construction activities, work will stop in that area and within 100 feet of the find until a qualified PG&E cultural resource specialist (CRS)/archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with PG&E and other appropriate agencies. Work may continue on other portions of the site with the CRS/archaeologist's approval. PG&E will implement the CRS/archaeologist's recommendations for treatment of discovered cultural resources.

b) Human Remains.
In keeping with the provisions provided in 7050.5 CHSC and Public Resource Code 5097.98, in the unlikely event that human remains or suspected human remains are encountered during any project-related activity, PG&E will:

1. Stop all work within 100 feet;
2. Immediately contact the CRS, who will then notify the county coroner and the CPUC;
3. Secure the location, but do not touch or remove remains and associated artifacts;
4. Do not remove associated spoils or pick through them;
5. Record the location and keep notes of all calls and events; and
6. Treat the find as confidential and do not publicly disclose the location.

If the coroner determines that the remains are Native American, California Health and Safety Code 7050.5 and PRC Section 5097.98 require that the PG&E CRS contact the NAHC within 24 hours. The NAHC, as required by PRC Section 5097.98, will determine and notify the Most Likely Descendant.

APM CUL-4: Undiscovered Potential Tribal Cultural Resources. The following procedure shall be employed (after stopping work and following the procedure for determining eligibility in APM CUL-3) 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:

1. The CRS shall 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.
2. The CRS shall 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 implement one of the example mitigation measures listed in PRC section 21084.3(b), or other feasible mitigation.

APM PALEO-1: Unanticipated Potential Paleontological Resources. If significant paleontological resources are discovered during construction activities, the following procedures will be followed:

1. Stop work immediately within 100 feet.
2. Contact the designated project inspector and PG&E CRS immediately;
3. Protect the site from further impacts, including looting, erosion or other human or natural damage;
4. The PG&E CRS in tandem with CPUC will arrange for a qualified paleontologist to evaluate the discovery. The paleontologist will be responsible for developing the recovery strategy in tandem with PG&E and will lead the recovery effort, which will include establishing recovery standards, preparing specimens for identification and preservation, documentation and reporting, and securing a curation agreement from the approved agency; and,
5. Work may not resume within 100 feet of the find until approval by the paleontologist and PG&E CRS.

APM PALEO-2: Worker's Environmental Awareness Training. Moderate and potentially high sensitivity formations are identified within the PAL; therefore, PG&E will provide environmental awareness training on paleontological resources protection. This training may be administered as a stand- alone training or included as part of the overall environmental awareness training as required by the project. The training will include, at minimum, the following:

1. The types of fossils that could occur at the project site.
2. The types of lithologies in which the fossils could be preserved.
3. The procedures that should be taken in the event of a fossil discovery.

4. Penalties for disturbing paleontological resources.

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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent HB-E line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the HB-H #1 line. The project will reduce the frequency of outages and necessary maintenance and address an existing generation curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

For the purposes of the impact analysis, locations of the existing structures are considered part of the existing conditions.

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 impact potential on cultural resources was evaluated based on the proximity of construction areas to known and discovered archaeological and historic sites. 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 cultural resources without proper notification. Direct impacts can be assessed by determining the exact location of cultural 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 (U.S. Department of the National Park Service 2017), 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? *Less-than-Significant Impact*

A total of nine cultural resources were identified within the PAL. Of these, eight (HB-H #1 line, the HB-H #1 115kV line/HB-H #2 line, the HB-E line, Redwood Acres, a segment of the Northwestern Pacific Railroad, Ryan Creek Railroad/P-12-1987, Elk River Railroad Grade/CA-HUM-1313), and agricultural complex at 5625 Elk River Road/P-12-3225 have been determined ineligible for listing in either the NRHP or the CRHR, as discussed further in the Cultural Report for the project provided separately to CPUC. The remaining Spiegelberg Homestead was found to have both ineligible portions (the built environment) and assumed eligible portions (the isolated artifact concentration). The artifact concentrations are located outside of, but adjacent to, the PAL. The area around the homestead will be used for construction access and a landing zone. No excavation will occur in this location (i.e., no new poles will be installed, and the access road will not be modified), and accordingly, the homestead's features should not be impacted by the project. Use of the access road through the area will not require grading, widening, or other substantial improvements that could disturb any buried cultural resources.

APM CUL-2 will ensure that the potentially eligible portions of the Spiegelberg Homestead site will be flagged or fenced for avoidance. In addition, implementation of APM CUL-1, which requires preconstruction worker awareness training, and APM CUL-3, which would reduce the potential for damage or destruction to archaeological resources as a result of an inadvertent discovery will further reduce the potential for impacts. Accordingly, the project will not cause a substantial adverse change in the significance of a historical resource.

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*

The intensive archaeological survey and literature search found no archaeological resources in the PAL. Additionally, the potential to encounter previously unidentified buried archaeological resources is considered to be low to moderate. Although that potential is minimal, the possibility of encountering a previously unidentified cultural resource cannot be discounted, and as such, implementation of APM CUL-3 would reduce the potential for physical demolition, destruction, relocation, or alteration to archaeological resources as a result of an inadvertent discovery. As such, in the event of an inadvertent discovery, the significance of an archaeological resource would not be materially impaired. Therefore, there will be less than significant impacts on archeological resources from the proposed project. While there is a possibility of inadvertent discovery of buried remains during implementation of the project, implementation of APM CUL-1 and AMP CUL-3 will reduce the potential for damage or destruction to archaeological resources to a less-than-significant level because PG&E will conduct preconstruction worker awareness training and manage undiscovered resources in accordance with the appropriate requirements. With these measures, the project will not cause a substantial adverse change in the significance of an archaeological resource.

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

Direct adverse impacts on surface or subsurface paleontological resources can result from breakage and crushing during surface and subsurface ground-disturbing actions including construction excavations.

No previously recorded fossil localities occur within the PAL. However, Pleistocene-aged vertebrate and invertebrate fossils have been found within the immediate vicinity (500 feet) of project components, and similar fossils may be encountered during excavation into the moderate or higher paleontological potential (PFYC 3) Centerville Formation. Project activities are unlikely to result in the recovery of scientifically significant fossils regardless of the sensitivity of the impacted sediments because fossil recovery is most likely to occur during project grading and drilling with augers that are 3 feet or greater in diameter that take place in paleontologically sensitive sediments, and the project's proposed construction method will use augers less than 3 feet in diameter or micropiles which are approximately 7 inches in diameter. One exception is the installation of the easternmost lattice steel tower approximately 0.6-mile east of Humboldt Bay Substation, which will have a 6-foot diameter drilled foundation. However, this structure is located in an area mapped as containing low paleontological potential sediments at the surface (Richards 2019). The Paleo Report, provided separately to the CPUC, provides additional detail regarding this analysis.

With implementation of APMs PALEO-1 and PALEO-2, project construction activities will have less-than-significant impacts on paleontological resources. 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*

Archival research and field investigations did not identify human remains within the PAL, therefore the project will likely result in no impact on human remains or interments. If human remains are encountered during project-related activities, APM CUL-3 will be implemented, which will avoid potential damage or destruction to human remains or internments from the inadvertent discovery.

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 2100.3.1 once the application is deemed complete. Impacts on TCRs are not addressed in this PEA because, under AB 52, the CPUC must identify these resources during consultation.

PG&E has conducted outreach and informal coordination with Native American tribes in an effort to request information from the tribes regarding the potential for sensitive Native

American resources, including TCRs. Cultural resources background research and surveys performed by PG&E did not identify Native American affiliated resources that may be considered TCRs within the PAL. 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-3.

3.5.5 REFERENCES

Able, J. 1993. Archaeological and Historical Resource Survey and Impact Assessment for the Eureka City Schools THP.

Allen, P and Matt Walker. 2018. *NRHP and CRHR Inventory and Evaluation: Humboldt Bay-Humboldt #1 60 kV, Humboldt Bay-Humboldt #1 115 kV, Humboldt Bay-Humboldt #2 60 kV, and Humboldt Bay-Eureka 60 kV Transmission Lines, Humboldt County, California*. Cardno, Inc., Sacramento, California.

Arnold B. and J. Benson. 1976. *N.I.C.P.A. Field Inspection Reports*: St. John, Pedrotti, Bushmin, French, Miller, Hendricks, Honeydew Land Unit #1, Weber, Hennings, Wilkerson, Fortuna Plywood, Reardon, & Kaufman Subdivisions; Vukonich, Medina, Ramey, Blue Lake Fire, Gallachi Drainage Disposals; Mitchell Road Water System.

Anonymous. n.d. "copy of correspondence found in S-14557 [Butler 1978]"

Bancroft, Hubert Howe. 1885. *History of California*. The History Company, San Francisco, California.

Benson, J. R., D. A. Fredrickson, and K. C. McGrew. 1977. Humboldt Bay Wastewater Authority, Regional Water Pollution Control Board Facility, Archaeological Resource Analysis: Archaeological Reconnaissance of the Humboldt Bay Area.

Berg, G. 1974. Archaeological Impact Evaluation, Humboldt Harbor and Bay Navigation Improvement Project: A Report on Field Investigations Undertaken for Environmental Research.

Billat, L. 2006. New Tower Submission Packet, FCC Form 620, Pine Hill, 568449, 4275 Union St., CA 95503.

_______ .2009a. Collocation ("CO") Submission Packet FCC Form 621, Myrtle Avenue PG&E Yard SF-40895C, Humboldt County, California.

_______ .2009b. Collocation ("CO") Submission Packet, FCC Form 620, PWM Cutten, SF-40890B.

_______ .2009b. Collocation ("CO") Submission Packet, FCC Form 620, PWM Cutten, SF-40890B.

_______ .2015. New Tower ("NT") Submission Packet, FCC Form 620, Myrtle Town, CA-005.

Blucher, D. 1975. Report of an Archaeological Field Survey of the Old Arcata Road.

Browning Cultural Resources, Inc. 2017. Extended Phase 1 Investigation at Site AS-1 in support of PG&E’s Humboldt #1 60kV Reconductoring Project, Humboldt County, California. Letter Report on file at Pacific Gas & Electric Company, 2730 Gateway Oaks Drive, Suite 220, Sacramento, CA 95833

Buckley, James M. 1997. A Factory without a Roof: The Company Town in the Redwood Lumber Industry. *Perspectives in Vernacular Architecture 7* (Exploring Everyday Landscapes): pp. 75-92.

Butler, E. 1978. An Historic Resources Inventory: The Old Arcata Road-Myrtle Avenue Corridor Outside.

Card, L. and J. Roscoe. 1995. An Archaeological Investigation of the Sundberg Property, Assessor’s Parcel Number 017-172-41, Humboldt County California.

Craig R. Newman Forestry. 2004. An Archaeological Survey Report for Timber Ridge Business Center/Timberland Conversion, Humboldt County, California; THP #1-04-075 HUM

Childs, S. 199. Archaeological and Historical Resource Survey and Impact Assessment for the Dias THP.

City of Eureka. 2004. *City of Eureka Historic Preservation Plan*. Approved November 16, 2004.

Crichton, R. Chalmers. 1986. When a Vessel Brought Power to Humboldt County. The Humboldt Historian, November-December 1986, pp. 4-7. Available at the Eureka Main Library, Humboldt Room.

Cohoon, D. 1993. Archaeological and Historical Resource Survey and Impact Assessment for the Slak-Eggert THP.

County of Humboldt. 2017. *Humboldt County General Plan for the Areas Outside the Coastal Zone.* Adopted October 23, 2017.

Dallas, S. F. 1955. The Hide and Tallow Trade in Alta California 1822–1848. Unpublished Ph.D. dissertation, Indiana University, Bloomington.

Douglas B. 1985. Archaeological Survey Report, Second Slough/McCullens Avenue Sewer Replacement Project: A Portion of the Greater Eureka Area Wastewater Project, City of Eureka, California.

Douglas, B. and P. Chiotti. 1980. Archaeological Survey Report for the Elk River Interchange.

Elsasser, A.B. 1978. Wiyot. In: *Handbook of North American Indians, Volume 8: California*, edited by R.F. Heizer, pp. 155-163. Smithsonian Institution, Washington, D.C.

Amy Foutch, A and Scher, N. 2012. Cultural Resources Study for the PG&E Line 177A MP 191.67 Erosion Mitigation Project, Humboldt County, California.

Fredrickson, D.A. 1984. The North Coastal Region. In *California Archaeology*, edited by M.J. Moratto, pp. 471-528. Academic Press, Orlando.

Gumprecht, Blake. 1999. *The Los Angeles River: Its Life, Death, and Possible Rebirth*. Johns Hopkins University Press, Baltimore.

Haney, J. 2008. Historic Property Survey Report, 01-HUM-101, K.P. 0.32-202.77 (P.M. 0.20-126.00), EA 01-464000.

Heald, L., et al. 2004. *Cultural Resources Survey of the Samoa Town Master Plan Site, Arcata, on file at* Center for Indian Community Development, Humboldt State University, Arcata, California.

Heizer, R.F. and A.F. Almquist. 1971. *The Other Californians: Prejudice and Discrimination under Spain, Mexico, and the United States to 1920*. University of California Press, Berkeley.

Heizer, R.F. and A.B. Elsasser. 1964. Archaeology of Hum-67, the Gunther Island site in Humboldt Bay, California. University of California Archaeological Survey Reports 62:1-122.

Hildebrandt, W.R. 1981. Native Hunting Adaptations on the North Coast of California. Unpublished PhD. Dissertation, University of California, Davis.

_____ 2007. Northwest California: Ancient Lifeways among Forested Mountains, Flowing Rivers, and Rocky Ocean Shores. In California Prehistory: Colonization, Culture, and Complexity, edited by Terry L. Jones and Kathryn A. Klar, pp. 83-98. Alta Mira Press, Lanham, MD.

Hoover, Mildred B., Hero E. Rensch, Ethel G. Rensch, and William N. Abeloe. 2002. *Historic Spots in California*, Fifth Edition, revised by Douglas E. Kyle. Stanford University Press, Stanford.

Hughes, R.E. 1978. Aspects of prehistoric Wiyot exchange and social ranking. The Journal of California Anthropology 5(1):53-66.

Irvine, Leah. 1915. History of Humboldt County California. Historic Record Co., Los Angeles, CA.

Kellawan, R. and J. Meyer. 2014a. Cultural Resources Study of the PG&E Hydrostatic Test Segment T-325-14, on Line 126a, MP 0.00-10.51, Humboldt County, California.

_______. 2014b. Cultural Resources Study of the PG&E Hydrostatic Test Segment T-236-13, on Line 137b MP 0.00-7.37, Humboldt County, California.

Kersey, K. 2008. Cultural Resources Negative Finds Study for the Replacement of 3-Poles on the PG&E Humboldt Bay to Humboldt (Order Number 30499714) 60kV Transmission Line, Humboldt County (letter report).

Kroeber, Alfred J. 1925. Handbook of the Indians of California. Bulletin 78, Bureau of American Ethnology, Smithsonian Institution. Government Printing Office, Washington, D.C. Reprinted 1976 by Dover Publications, Inc., New York.

Launi, S. 1998a. Confidential Archaeological Addendum for Timber Operations on Non-Federal Lands in California, Cutten Sports Complex 1-98-184 H UM (S-24302).

_____. 1998b. Confidential Archaeological Addendum for Timber Operations on Non-Federal Lands in California, Cutten Sports Complex, THP #1-98-184 HUM (S-42081).

_____. 2006a. An Archaeological Survey Report for the South Eureka Timber Harvesting Plan, Humboldt County, California 1-06-030 HUM.

_____. 2006b. An Archaeological Survey Report for the Martin Slough Timber Harvesting Plan, Humboldt County, California. CAL FIRE THP #1-07-014 HUM.

Lindsey, J. 2000. Confidential Archaeological Addendum for Timber Operations on Non-Federal Lands in California, Toland THP, THP #1-00-441 HUM.

Linton, Loretta. 1969. The Pacific Gas and Electric Company in Humboldt County. Unpublished Senior Seminar thesis. Humboldt State University, Arcata.

Loud, L.L. 1918. Ethnogeography and archaeology of the Wiyot territory. University of California Publications in American Archaeology and Ethnology 14(3):221-437, Berkeley.

McLaughlin, R.J., Ellen, S.D., Blake, M.C., Jayko, A.S., Irwin, W.P., Aalto, K.R., Carver, G.A., and Clarke, S.H. 2000. Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern Part of the Hayfork 30 x 60 Minute Quadrangles and Adjacent Offshore Area, Northern California. United States Geologic Survey. Miscellaneous field studies MF-2336 (6 sheets). Accessed at https://ngmdb.usgs.gov/Prodesc/proddesc_25788.htm.

Meyer, Jack, Philip Kaijankoski, Jeffrey S. Rosenthal. 2011. A Geoarchaeological Overview and Assessment of Northwest California Cultural Resources Inventory of Caltrans District 1 Rural Conventional Highways: Del Norte, Humboldt, Mendocino, and Lake Counties.

Montizambert, E. 1985. An Archaeological Investigation of the Proposed Humboldt Bay Dike Repair Project Fields Landing Vicinity Humboldt, County, California.

Newman, C. 2004. An Archaeological Survey Report for Timber Ridge Business Center/Timberland Conversion Humboldt County, California 1-04-075.

______. 2012. An Archaeological Survey Report for the Hospice of Humboldt THP, Humboldt County, California.

Palais, Hyman and Earl Roberts. 1950. The History of the Lumber Industry in Humboldt County. Pacific Historical Review 19(1): 1-16.

Par Environmental Services, Inc. 2003. Cultural Resources Study for the PG&E Humboldt Bay Power Plant ISFSI Licensing Project, Final Report. Prepared for Pacific Gas and Electric.

Paullin, P. 2011. Field Office Report of Cultural Resources Ground Survey Findings, structures for water control, seeding, WRP easement.

Pera, M. 2001. Confidential Archaeological Addendum for Timber Operations on Non-Federal Lands in California, McMahan Trust /Eureka, CA, THP #1-01-057 HUM

PG&E. 2019. *PG&E Humboldt Bay Power Plant Decommissioning Project*. Accessed January 24, 2019. https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/buildings-and-operations/humboldt-bay-power-plant.page

_____. 2012. Humboldt Bay Power Plant. Available at http://www.pge.com/about/environment/pge / minimpact/humboldtbay. Accessed July 11, 2012.

Quercus Consultants, Inc. 2019. Cultural Resources Inventory, Survey, and Evaluation Report for the Humboldt Bay-Humboldt #1 60 kV Reconductoring Project.

Roop, W., K. Flynn, J. Parsons, and D. Bacchetti. 1995. An Evaluation of the Archaeological Potential Within the North Coast Railroad, Eureka to Willits, California, and a Field Inspection of 23 Repair Points Along the Route: Final Report.

Roscoe, J. 1995. A Cultural Resources Study of the Hales Property, Assessor's Parcel Number 302-131-07, Humboldt

______. 1989a. An Archaeological Investigation of the Proposed Widening of Harrison Avenue, Eureka, Humboldt County, California.

______. 1989b. An Archaeological Investigation of the Proposed Road Widening of Elk River Road, Humboldt County, California.

Roscoe J. and W. Rich. 2011. Cultural Resources Investigation Report for Phase 2 of the Martin Slough Interceptor Project, Located in Eureka, Humboldt County, California.

______. 2012. A Cultural Resources Investigation for the Hospice of Humboldt Project Located in Eureka, Humboldt County, California.

Roscoe J., W. Rich and J. Rohde. 2013. An Archaeological Survey Report for the Swain Slough Bridge Replacement Project at Pine Hill Road Located near Eureka, Humboldt County, California.

Roscoe J. and S. Van Kirk. 2002. A Cultural Resources Investigation of the Proposed Martin’s Slough Sewer Connector Route, City of Eureka, Humboldt County, California (refers to Lorensen House & Barn and Culver Property).

_____. 2012. A Cultural Resources Investigation of the Proposed Martin's Slough Sewer Connector Route, City of Eureka, Humboldt County, California.

Roscoe, J. M. 1989. An Archaeological Investigation of a Proposed Lot Split of the Roy Johnson Property, Humboldt County, California.

Roscoe, J. M. and Brunmeier P. 1991. A Cultural Resources Study of the Proposed Water System for Upper Mitchell Heights, Felt Road, and Freshwater Road, Humboldt County, California.

Stowe, K. 2000. Confidential Archaeological Addendum for Timber Operations on Non-Federal Lands in California for Shorty THP.

Sullivan S. and J. Allan. 1994. Report on a Marine Archaeological Survey Conducted for Widening of Humboldt Bay Navigational Channels.

Taylor, E. and Roscoe, J. 1998. A Cultural Resources Study of Assessor's Parcel Number 306-061-15, The Frank Sperry Property, Located in Fields Landing, Humboldt County, California.

Templeton, G. 1995. Confidential Archaeological Addendum for Timber Operations on Non-Federal Lands in California for the Redwoods Acres.

The Humboldt Historian. 1985. Lumber Firms Sparked Move to Electricity. *The Humboldt Historian*, July-August, pp.9-11. *Available at* Eureka Main Library, Humboldt Room.

U.S. Department of the Interior National Park Service. 2017. rev. The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings. 1995.

Van Kirk, Susie. 1999. Humboldt County: A Briefest of Histories. Prepared for the Shades of Humboldt Project. Available at http://www.humboldthistory.org/bHumboldtHistory.html. Accessed May 12, 2012.

Wiese, R. 2001. Confidential Archaeological Addendum for Timber Operations on Non-Federal Lands in California, Eureka City Schools 1-02NTMP-012 HUM.

Zalarvis-Chase, D. 2014. Cultural Resources Monitoring Report No. 1, August 2010 through August 2013, Humboldt Bay Power Plant Decommissioning, Humboldt County, California.

Zalarvis-Chase, D and Hodges, E. 2016. Phase I Cultural Resource Inventory Report Fisherman’s Channel Dredging and Beneficial Reuse Pilot Project January 2016 Humboldt County, California.

Paleontological References

Bureau of Land Management (BLM). 2016. *Potential Fossil Yield Classification System: BLM Instruction Memorandum No. 2016-124*. Online: https://www.blm.gov/policy/im-2016-

Dibblee, T.W., Jr., and Minch, J.A. 2008. *Geologic Map of the Ferndale, Fortuna, and Iaqua Buttes 15 Minute Quadrangles, Humboldt County, California*. Dibblee Geological Foundation, Map DF-413, scale 1:62,500.

Grant, U.S., and Gale, H.R. 1931. "Catalogue of the Marine Pliocene and Pleistocene Mollusca of California." *Memoirs of the San Diego Society of Natural History*. Vol. 1, Pages 1-1036.

McLaughlin, R.J., Ellen, S.D., Blake, M.C., Jayko, A.S., Irwin, W.P., Aalton, K.R., Carver, G.A., Clarke, S.H., Barnes, J.B., Cecil, J.D., and Cyr, K.A. 2000. *Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern Part of the Hayfork 30 X 60 Minute Quadrangles and Adjacent Offshore Area, Northern California*. U.S. Geological Survey, Map MF-2336, scale 1:100,000.

Paleobiology Database (PBDB). 2018. The Paleobiology Database. Online: https://paleobiodb.org/. Accessed on June 18, 2018.

Richards, Courtney. 2019. Paleontological Evaluation and Inventory report. Humboldt Bay-Humboldt # 60kV Reconductoring Project. Prepared by Paleosolutions Inc., for PG&E.

Society of Vertebrate Paleontologists (SVP). 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. Online: http://vertpaleo.org/Membership/Member-Ethics/SVP_Impact_Mitigation_Guidelines.aspx. Accessed on October 10, 2018.

University of California Museum of Paleontology (UCMP). 2018a. Personal communication between Patricia Holroyd/Senior Museum Scientist and Barbara Webster/GIS Specialist & Archaeologist. June 27, 2018.

______. 2016. 2018b. UCMP Specimen Search. Online: https://ucmpdb.berkeley.edu/. Accessed on June 18, 2018.

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 fault-surface rupture, ground shaking, landsliding, liquefaction, and other ground-failure mechanisms. The implementation of Applicant-Proposed Measures (APMs) described in Section 3.6.4.2 will further reduce less-than-significant impacts on geology and soils. The project's potential effects on geology and soils were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. 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) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste-water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

3.6.2 Regulatory Background and Methodology

3.6.2.1 Regulatory Background

Federal

No federal regulations related to geology, soils, or 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 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 (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.

Local

Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. Current project plans do not require installation of any facilities that would require a building permit; however, if plans were to change during final design of the project, PG&E would obtain a building permit or other required ministerial permits.

3.6.2.2 Methodology

Information on the geology and soils was compiled from published literature, maps, and geospatial data. Geologic units and structural features were obtained from maps published by the U.S. Geological Survey (USGS) and the California Geological Survey (CGS).

Soil descriptions were obtained from mapping by the U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). Landslide hazards and liquefaction potential were evaluated by reviewing geologic and hazard maps from the CGS, Humboldt County GIS Portal, Humboldt County General Plan, and a Geotechnical Investigation performed at the project site (TRC 2017). Seismic information from several data sources, including the USGS, CGS, and the Geotechnical Investigation was then developed (TRC 2017).

3.6.3 ENVIRONMENTAL SETTING

3.6.3.1 Regional Setting

The existing Humboldt Bay-Humboldt #1 60 kV Power Line extends approximately 7.8 miles generally northeast from Humboldt Bay Substation and along the southern margin of the City of Eureka, terminating at Humboldt Substation, approximately 0.75 mile east of the Redwood Fairgrounds. The topography includes the lowlands of the Elk River floodplain, and a fairly level upland terrace incised by several creeks.

From Humboldt Bay Substation, the power line crosses the Elk River approximately 1 mile east of the substation and runs along or crosses Martin Slough at several points east of the Elk River. The power line ascends and follows the terrace to Humboldt Substation. The highest point along the power line is on high ground dividing the Martin Slough and Ryan Slough drainages. This high ground is located where the power line runs along Redwood Street in the Cutten area. Ground surface elevations along the power line range from less than 10 feet in the lowlands of the Elk River floodplain to approximately 190 feet at Redwood Street.

3.6.3.2 Geology

The project lies within the Coastal Range Geologic Province (California Department of Conservation 2002). The Coastal Range Geologic Province consists of an assemblage of accreted Mesozoic and Cenozoic rocks of the Franciscan Complex, and by structural remnants of a Mesozoic forearc, including Coast Range ophiolite and Great Valley Sequence rocks. These structural blocks have accumulated sequentially from east to west. This process continues currently in offshore areas north of the Mendocino fracture zone. Tectonic activity related to the Mendocino Triple Junction (Gorda, North American, and Pacific tectonic plates) plays a major role in creating the regional geologic structures.

At the Mendocino Triple Junction, the Gorda, Pacific, and North American plates collide, with the Gorda plate being forced down beneath the North American Plate, also known as the Cascadia Subduction Zone. Predominantly horizontal motion characterizes the Gorda-Pacific plate boundary.

Important structural features in the area result from the tectonic activity at the Mendocino Triple Junction and elsewhere along the Pacific–North American plate interface. A fabric of northwest–southeast trending faults has been produced that characterizes the structure of the region. Faults near the project include the Little Salmon Fault Zone, Mad River Fault Zone, Freshwater Fault, and Ferndale Fault. These faults and associated seismic hazards are discussed further in the Seismicity section below.

Geologic Units within the Project Area

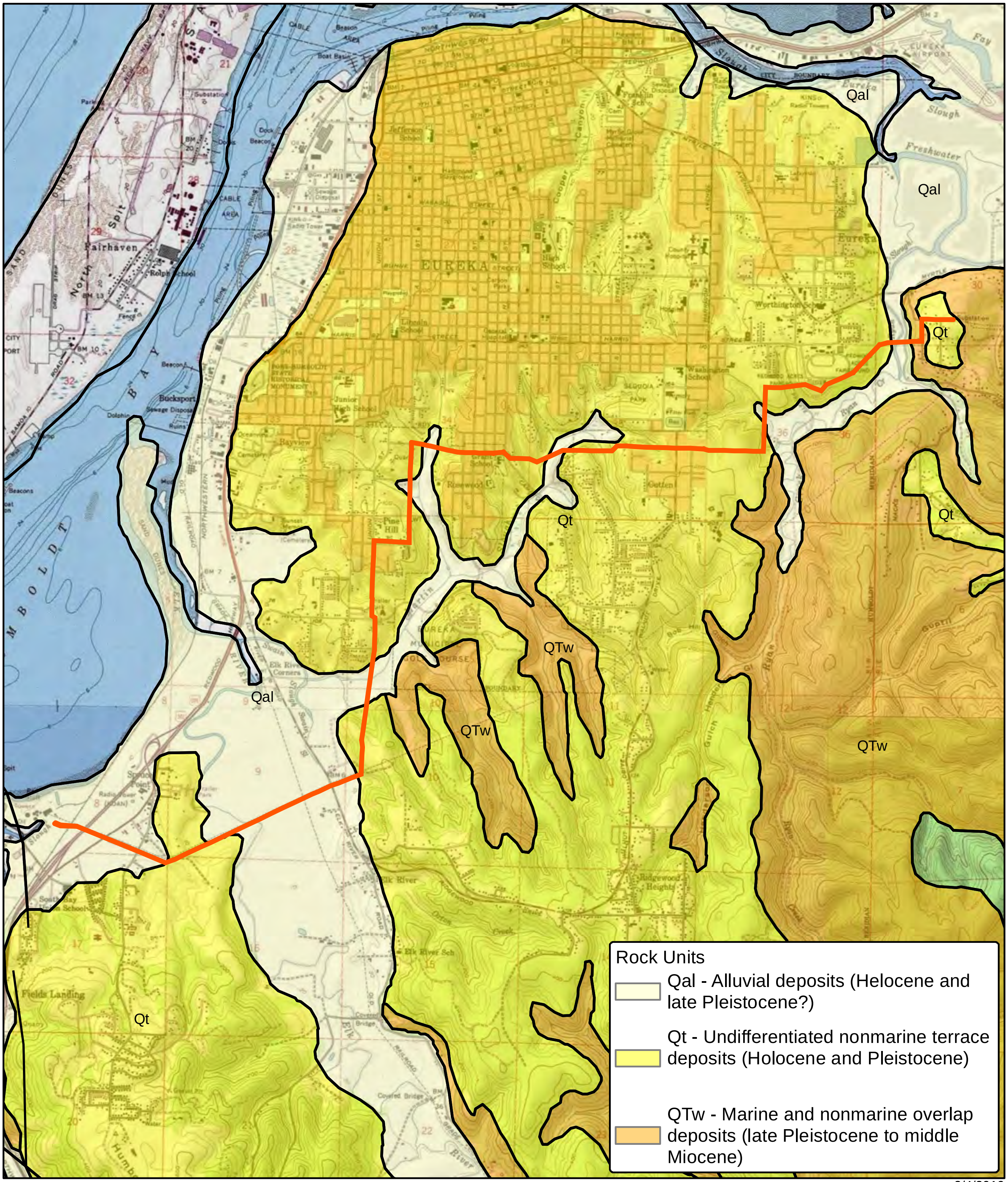
According to the mapping of McLaughlin et al. (2000), the area is underlain by three geologic units. These units include, in stratigraphic order from youngest to oldest, possibly Holocene and late Pleistocene Alluvial Deposits (Qal), Holocene and Pleistocene Undifferentiated Non-marine Terrace deposits (Qt), and late Pleistocene to middle Miocene Marine and non-marine Overlap deposits (QTw). A geologic map including the project area is shown Figure 3.6-1: Geology.

- **Alluvial Deposits (Qal - Holocene and late Pleistocene)**. Transported clays, silts, sands, gravels, cobbles, and boulders that are found in drainages, floodplains, alluvial fan and terrace deposits, ponds, and deltas. Includes soil horizons that may overlie these sediments, and younger deposits in modern stream channels and on flood plains.

- **Undifferentiated Non-Marine Terrace Deposits (Qt - Holocene and late Pleistocene).** Warped or uplifted "valley plain" terrace and fluvial deposits capped with typically thin, yellow-orange beds of clays, silts, sands, and gravels. In the vicinity of Eureka, the non-marine terrace deposits include the Hookton and Rohnerville formations (McLaughlin et al., 2000). Interlocking of shallow marine layers may be present to the west, nearer to the shore. The Rohnerville Formation is composed of, cross bedded, poorly consolidated flood plain deposits of clay, silt, sand, and gravel lenses, generally yellow-brown to orange-brown. The Hookton Formation exhibits a variable lithologic profile, but is composed mainly of clays, sands, and gravels exhibiting a yellow-orange color. They overlie the folded beds of the Wildcat Group, and are visible capping terraces in the Eel River area. Bedrock underlying the younger units exposed at the surface in the area belongs to the Wildcat Group, which is an assemblage of Pliocene age, predominantly interbedded mudstone, siltstone, and claystone, with lesser amounts of weakly to moderately well lithified sandstone and minor conglomerate.
- **Marine and Non-Marine Overlap Deposits (QTw - late Pleistocene to middle Miocene)**. These deposits are largely composed of clays, silts, sands, and gravels predominantly of the marine Wildcat Group, but also include in part the Neogene shelf, slope and basin deposits, and eroded shallow marine and brackish water strata that cap the Franciscan Complex. These marine and non-marine overlap deposits include lenses of pebble to boulder conglomerates, carbonate concretions, abundant mulluscan fossils, and woody debris (McLaughlin et al. 2000). The Wildcat Group – a major component of these marine and non-marine overlap deposits – includes minor amounts of limestone, tuff, and lignite and consists of the Pullen Formation, Eel River Formation, Rio Dell Formation, Scotia Bluffs Sandstone, Carlotta Formation, and undifferentiated Wildcat deposits. The uppermost member of the Wildcat Group—the Carlotta Formation—underlies the Hookton Formation.

3.6.3.3 Soils

A comprehensive soil survey is available from the U.S. Department of Agriculture with current soils data (NRCS 2017). The project surface soils are predominantly mapped as Weott silt loam (0 to 2 percent slopes), Hookton-Tablebluff complex clay loam (2 to 9 percent slopes), Lepoil-Espa-Candymountain complex loam (15 to 50 percent slopes), and Urban land-Halfbluff-Redsands complex sandy loam (0 to 5 percent slopes) (NRCS 2017). The other less dominant soils mapped are clay loams (Hookton-Tablebluff-Cannonball complex, Salmoncreek-Tepona-Rootcreek complex, urban land, Swainslough, and Occidental) located near urban areas in Humboldt Bay (slopes up to 50 percent).



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2/4/2019

Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)

FIGURE 3.6-1

Geology

Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

-United States Department of the Interior, United States Geological Survey. July 18, 2018. National Geologic Map Database. National Cooperative Geologic Mapping Program. Data accessed September 20, 2018. https://ngmdb.usgs.gov/Prodesc/proddesc_25788.htm
-McLaughlin et al. 2000. Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern Part of the Hayfork 30 x 60 Minute Quadrangles and Adjacent Offshore Area, Northern California.

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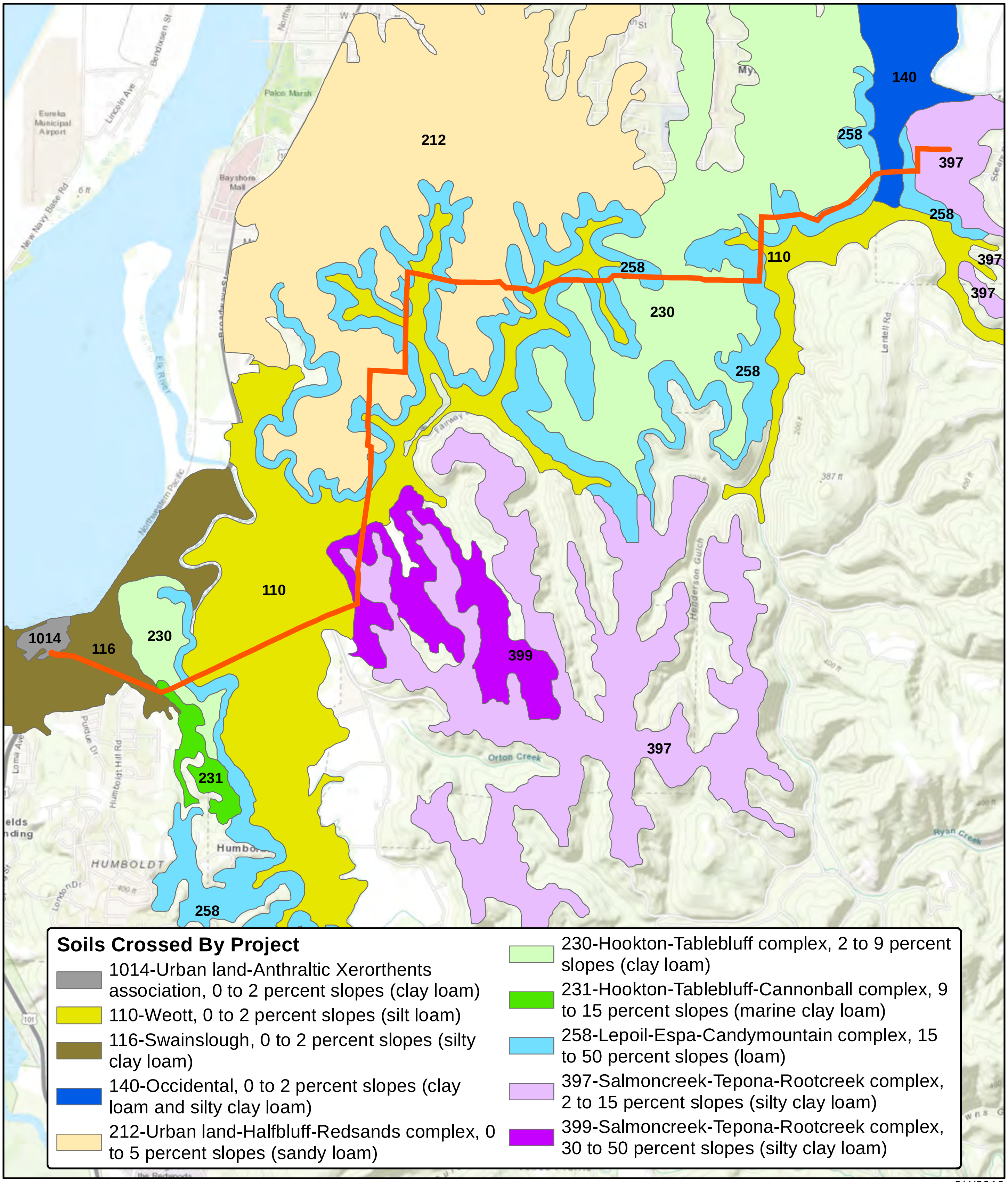
Results you can rely on

The Weott series consists of very deep, poorly drained soils formed in alluvium derived from mixed sources in backswamps, depressions, and variable flood plains (NRCS 2017). The Halfbluff Series consists of very deep, moderately well-drained soil formed in marine deposits from mixed sources typically found on marine terraces with slopes of 0 to 9 percent (NRCS 2017). The Hookton Series consists of very deep, somewhat poorly drained soils formed in alluvium derived from mixed sources typically found on erosional remnants, drainageways, and dissected terraces (NRCS 2017). A detailed map from the soil survey depicting the distribution of the various soil types along the existing power line alignment is shown on Figure 3.6-2: Soils. The soil units shown on the map are summarized in Table 3.6-2 below.

Table 3.6-2: Soil Units

Map Symbols	Soil Type Designation
1014	Urban land-Anthraltic Xerorthents association, 0 to 2 percent slopes (clay loam)
110	Weott, 0 to 2 percent slopes (silt loam)
116	Swainslough, 0 to 2 percent slopes (silty clay loam)
140	Occidental, 0 to 2 percent slopes (clay loam and silty clay loam)
212	Urban land-Halfbluff-Redsands complex, 0 to 5 percent slopes (sandy loam)
230	Hookton-Tablebluff complex, 2 to 9 percent slopes (clay loam)
231	Hookton-Tablebluff-Cannonball complex, 9 to 15 percent slopes (marine clay loam)
258	Lepoil-Espa-Candymountain complex, 15 to 50 percent slopes (loam)
397	Salmoncreek-Tepona-Rootcreek complex, 2 to 15 percent slopes (silty clay loam)
399	Salmoncreek-Tepona-Rootcreek complex, 30 to 50 percent slopes (silty clay loam)

Expansive soils contain significant amounts of clays that can expand when wet. Soil units within the project area are primarily composed of sand and gravel with lesser amounts of clay and are not described as potentially expansive (McLaughlin and Harradine 1965). Four samples collected from the Hookton Formation had clay contents ranging from 9 to 27 percent (Ogle, 1953). This is the most prevalent soil type along the project alignment; other soils along the alignment are soft to medium stiff and very stiff clay to depths of approximately 20 to 43 feet, and interbedded layers of poorly graded sand and silty sand to approximately 80 feet deep (TRC 2017). Accordingly, while most of the soils are not expansive, there is potential to encounter small amounts of expansive soils throughout the project area.



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 3_6-2 Soils.mxd

2/4/2019

Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)

FIGURE 3.6-2
Soils
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

Natural Resources Conservation Services (NRCS), Soils. October 31, 2017. Web Soil Survey. United States Department of Agriculture (USDA). Data Access Date September 11, 2018 https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

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Results you can rely on

3.6.3.4 Seismicity

Fault Zones

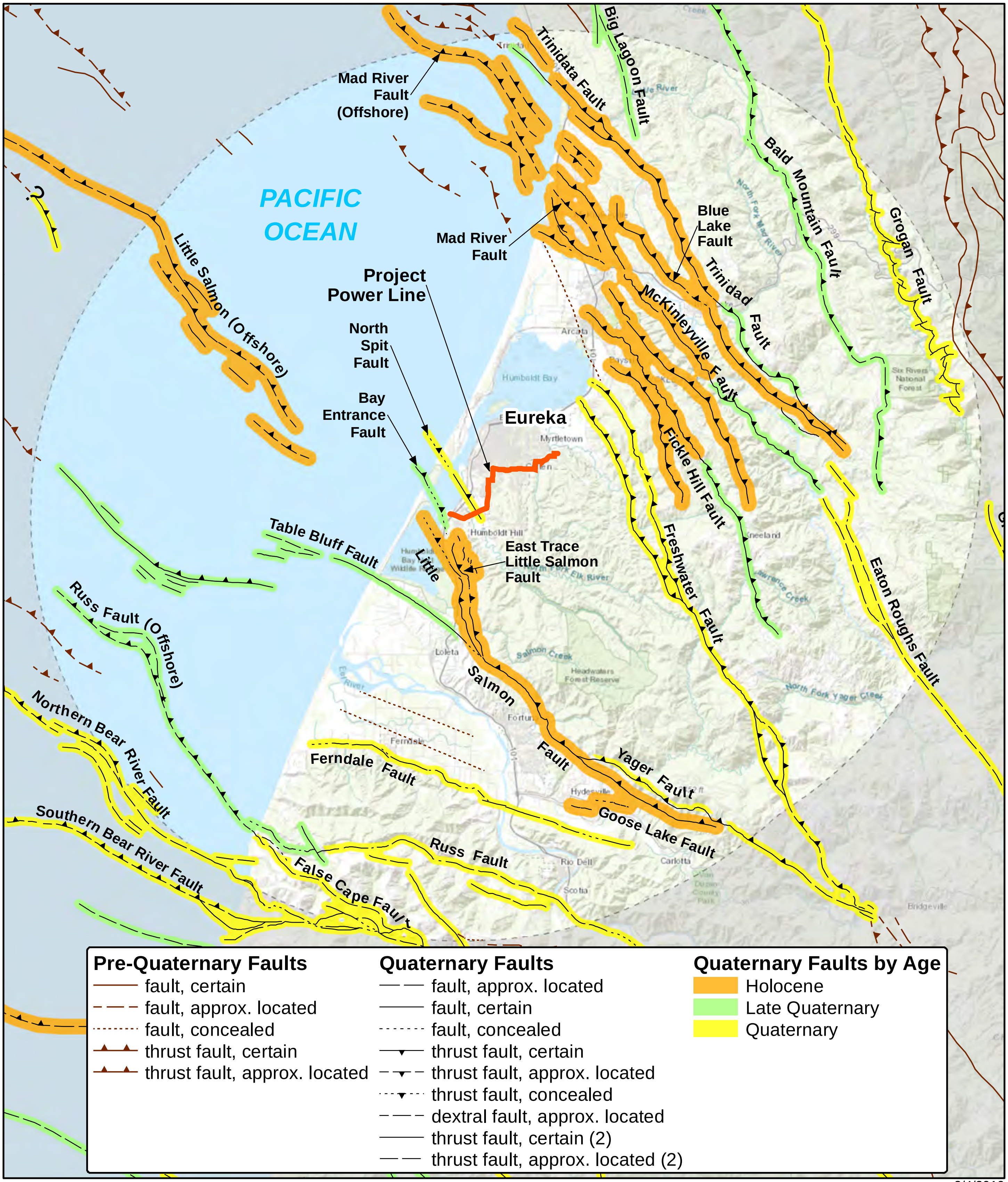
Faults within 20 miles that have a potential to impact the project are listed in Table 3.6-3:Regional Faults and Distance to Quakes. Included in Table 3.6-3 is the approximate distance of the fault from the nearest point in the project area and the highest magnitude recorded, if available (magnitude being a measurement used to compare the size of earthquakes based on the amount of energy released by the event). These faults show evidence of Quaternary displacement and may be recognized as active or potentially active. Also included in Table 3.6-3 are major offshore faults associated with the Mendocino Triple Junction, which can produce earthquakes that would impact the area. The major offshore faults are not discussed in subsequent sections because they do not pose any hazard for surface rupture in the project area. Brief descriptions of faults active during Quaternary time within 20 miles of the project are given below.

The North Spit segment of the Little Salmon Fault Zone strikes northwest, paralleling the northeast shoreline of Humboldt Bay. Current mapping suggests that the fault continues onshore and crosses the existing power line in the Elk River floodplain east of the river. However, no evidence of this fault has been found onshore. If the fault does extend onshore, it is buried by Quaternary sediments. The length of the mapped segment is approximately 2.8 miles. The segment is not zoned as an Alquist-Priolo Earthquake Fault and shows no evidence of displacement in Holocene time. Because the segment is not an “active” fault, no Maximum Credible Earthquake (MCE) is given by the CGS. There are also no estimates for slip rate on this fault.

Table 3.6-3: Regional Faults and Distance to Quakes

Fault	Length (miles)	Distance From Project (miles)	Slip Rate (millimeters/year)[1]	Maximum Magnitude (Mw)[1]
North Spit	2.8	0*	n/a	n/a
Bay Entrance	3.5	0.4	n/a	n/a
Little Salmon (onshore)	57	0.8	5	7.0
Freshwater	27	2	n/a	n/a
Table Bluff	12	4.5	0.6	7.0
Mad River Fault Zone	50	5	2.3	7.1
Ferndale	16	11.5	n/a	n/a
Bald Mountain-Big Lagoon	76	14	1 to 5	7.3
Grogan	93	18	n/a	n/a
Cascadia Subduction Zone	470	33	35	8.3
Mendocino	108	33	35	7.4

Notes:
* Fault distance based on Figure 3.6-3
[1] CDC and USGS 1996



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 3_6-3 Faults within 20 Miles and Major Offshore Faults.mxd

2/4/2019

Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)

Area beyond 20-Mile Radius of Circuit Alignment

FIGURE 3.6-3

Faults Within 20 Miles and Major Offshore Faults

Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

Fault Activity Map of Calfifornia (2010), California Geological Survey, data downloaded from http://maps.conservation.ca.gov/cgs/fam/ on 09/28/2017.

0 5 10

Miles

N

TRC

Results you can rely on

The Bay Entrance Fault (part of the Little Salmon Fault Zone) strikes northwest extending through the entrance of Humboldt Bay. The fault comes onshore at Buhne Point south of Humboldt Bay Substation, passing within 0.4 miles of the project area. The Bay Entrance Fault, approximately 3.5 miles long, is not currently active.

The Little Salmon Fault Zone (east trace) includes an area of diffuse faulting with numerous short segments on the southwest flank of Humboldt Hill. The area is just under 1 mile wide and just over 2 miles in length. Segments mapped in this zone are up to 0.6 miles long and strike northwest to northeast. The Little Salmon Fault Zone (east trace) is the closest Alquist-Priolo Earthquake Fault Zone to the project area. The combined length of the offshore, main, and east traces of the Little Salmon Fault is approximately 59 miles (including the Yager Fault). The closest point on the project area is approximately 0.8 miles from the Little Salmon Fault Zone.

The Freshwater Fault is approximately 2 miles northeast of Humboldt Substation. The strike of the fault is northwest-southeast. The northern end lies just east of Freshwater Creek near Arcata Bay. The fault is approximately 27 miles long and is not currently active (Hart 1999).

Table Bluff Fault also trends northwest and is located about 4.5 miles southwest of the project area. It branches westward from the main trace of the Little Salmon Fault and along Table Bluff. The fault is approximately 12 miles long. It is classified as potentially active with the most recent displacement during late Quaternary time.

The Mad River Fault zone includes the Mad River Fault, the Fickle Hill Fault, the McKinleyville Fault, the Trinidad Fault, and other unnamed segments. It is a 6-mile-wide, 50-mile-long zone of northwest-striking faults. Most of the area between Arcata Bay and Trinidad Head is encompassed in the fault zone. The closest point on the project to the fault zone is Humboldt Substation, located approximately 5 miles to the southwest of the fault zone. Segments within the Mad River Fault Zone are zoned as Alquist-Priolo Earthquake Faults, and exhibit evidence of Holocene displacement.

The Ferndale Fault is located approximately 11.5 miles south of the project area. The fault strikes almost east-west on the southern boundary of the Eel River floodplain; it passes directly through the village of Ferndale. It is approximately 16 miles in length and does not show evidence of Holocene displacement.

The Bald Mountain-Big Lagoon Fault lies 14 miles east of Humboldt Substation. This fault consists of several sub-parallel segments and has a total length of about 76 miles. It is northwest striking, parallel to the Mad River Fault Zone, and extends offshore south of Orick at Big Lagoon. Most recent deformation is late Quarternary (Hart 1999).

The Grogan Fault delineates the eastern extent of Quaternary faulting in the area. It is located 18 miles east of Humboldt Substation and trends northwest. It is approximately 93 miles long. The southern end lies in the vicinity of Ruth Lake, and it continues offshore just north of Orick. The fault is not classified as currently active.

The existing power line does not cross any active or potentially active faults, or projections of these faults along the strike of each specific fault; therefore, the fault rupture potential is considered low. The North Spit segment of the Little Salmon Fault Zone is mapped as crossing the project area between the Elk River and Elk River Road (near Pole 23) and again east of Elk River Road (Kilbourne et al. 1980). However, due to burial by Quaternary sediments, the extent and exact location of the North Spit Fault is not known in the Elk River floodplain. No other faults are known to intersect the project area. The closest active Alquist-Priolo Earthquake Fault Zone is the east trace of the Little Salmon Fault, which is 0.8 miles from the project area. Therefore, the potential for fault rupture hazard is low.

Ground Shaking

The project is on the western edge of the North American plate, near the southern end of the Cascadia subduction zone, and a short distance from the Mendocino Triple Junction. The region is traversed by many active and potentially active faults.

The tectonics of coastal northwestern California are dominated by plate boundary interactions among the North American plate, the Pacific plate, and the combined Gorda-Jaun de Fuca plates. North of the Mendocino Triple Junction, the Gorda and Juan de Fuca plates are being forced beneath the North American plate along the Cascadia subduction zone that extends from the vicinity of Cape Mendocino to north of Vancouver Island. South of this junction, the Pacific plate moves northward relative to the North American plate along the San Andreas Fault Zone. The Mendocino Fault Zone marks the right-lateral transform boundary between the Pacific plate and Gorda-Juan de Fuca plates.

The structure of the main Cascadia subduction zone segment in the north coast California region is interpreted to include a 40- to 60-mile-wide, active, fold-and-thrust belt in the North American plate margin that extends onshore in northern California. This fold-and-thrust belt is composed mainly of two distinct groups of thrust faults: the Mad River Fault Zone and the Little Salmon Fault Zone (Clarke and Carver 1992). Both groups are composed of right-stepping, parallel, seawardly-arranged thrust faults.

This region is among the most seismically active of any in western North America. During the past 50 years, at least 54 earthquakes of magnitude 5.0 and greater have been reported within 100 miles of Eureka, including seven magnitude 7. (NCEDC 2014). Earthquakes over magnitude 7.0 that have occurred in the last 96 years within 160 miles of the project from the USGS Earthquake Catalog are summarized in Table 3.6-4 below.

Table 3.6-4: Magnitude 7 or Higher Earthquakes Within 100 Miles of the Project Alignment Since 1922

Year	Month	Day	Depth (kilometers)	Magnitude (Mw)	Epicentral Distance from Site (kilometers)
1922	01	31	-	7.6	114
1923	01	22	-	7.2	40
1980	11	08	19	7.2	39
1991	08	17	13	7.0	155
1992	04	25	15	7.2	46
1994	09	01	10	7.0	134
2005	06	15	16	7.2	160

In addition to active faults described in the previous section, the Mendocino Fault and the Cascadia Megathrust have potential to produce strong ground shaking in the project area. These are both offshore of Eureka and there is no potential for ground rupture within the project area from the Mendocino Fault or the Cascadia Megathrust.

The Mendocino Fault forms the boundary between the Pacific and Gorda plates. It is 108 miles long and generally strikes N79^{o}W. The eastern end of the fault terminates near the northern extent of the San Andreas Fault. No creep rate has been determined for the Mendocino Fault, but estimates based on kinematic modeling have been made indicating as much as 35 millimeters of creep per year (Bryant 2001).

The Cascadia Megathrust is a low-angle plate boundary fault where the Gorda-Juan de Fuca plate is subducted beneath the North American plate. The fault is approximately 470 miles in length and is located off the coast of North America from Cape Mendocino northward to about 100 miles from Vancouver Island. In the vicinity of Eureka, it is approximately 33 miles offshore.

A very large earthquake on the Cascadia subduction zone would result in significant ground shaking in the region and uplift of the coast in the vicinity of Eureka. Subsidence and potential tsunami inundation along the coast depends on the position of the coast with respect to the surface projection and dip of the subduction zone, as well as displacements on the upper plate faults and folds. In northern California, the transition between co-seismic uplift and subsidence along the Cascadia subduction zone (the “hinge line”) lies at the coast near the mouth of the Klamath River, and trends offshore to the north where co-seismic subsidence predominates. To the south, the hinge line trends inland and is 12 to 18 miles east of Humboldt Bay, passing through the lower Mad River area. The area along the coast south of the Table Bluff Fault will generally be uplifted. Approximately three to six feet of uplift are predicted at Humboldt Bay (PG&E 2008).

Estimated Peak Ground Acceleration

For the project area, Peak Ground Accelerations (PGAs) based on the USGS seismic hazard map (USGS 2014) with10 percent probability of being exceeded in 50 years are estimated to range from 0.4 gravity (g) to 0.8g. Because of the length of the existing power line and variations in geologic conditions along its length, accelerations will vary along the project area, and may be higher than estimated for a particular structure within the corridor.

3.6.3.5 Landslides

A landslide is defined as the down-slope slipping or flowing of a mass of rock or soil. Landslide potential is high in steeply sloped areas underlain by alluvial soils or thinly bedded shale or clayey bedrock formations where the bedding planes are oriented in an out-of-slope direction (bedding planes are greater than horizontal, but less than the slope face).

Several potential landslides are present in the project area (Kilbourne 1985, Kelley 1984, and Wills 1990). The surface expression of landslide features are subdued, suggesting these features are relatively old. However, the slides are still potentially active and may experience movement during large earthquakes or periods of significant precipitation. No evidence is seen of recent movement of these landslides and mapping of the potential for landslides in the project area has been performed on the southern portion of the project area (Marshall and Mendes 2005a). Relative landslide potential in gentle to moderately sloped areas with alluvium consisting of sand, silt, and clay along major stream channels is very low. Areas within the Hookton formation consisting of unconsolidated marine and non-marine sand, gravel, and silts on steep slopes have a high to very high potential for landslides (Marshall and Mendes 2005b). CGS has not published a landslide hazard map for the Eureka Quadrangle.

3.6.3.6 Erosion

Erosion is the process by which rock, soil, and/or other earthen materials are abraded or worn away from the surface over time. The rate of erosion depends on factors including geologic parent material, soil type, slope steepness, and weather. The potential for erosion is greatest in loose, unconsolidated soils. The steepness of slopes and absence of vegetation are additional factors that increase the rate of erosion. Thus, erosion potential is high in steep unvegetated areas, especially those disturbed by grading or other construction activities.

Soil susceptibility to erosion is variable and a function of soil texture, soil structure, slope steepness, amount of vegetative cover, and climate. Surface erosion mainly occurs in loose soils, on moderate to steep slopes, particularly during high-intensity storm events. Soil and bedrock, along the existing power line, are primarily composed of Quaternary weakly consolidated sandy materials and clayey flood plain deposits in the lower alluvial drainages. The potential for erosion varies across the project area and is low to moderate in the flat-lying areas and moderate to high on the steeper terrain where streams have incised the Hookton formation.

3.6.3.7 Subsidence

Subsidence can be caused by two mechanisms. One type of subsidence involves deep-seated settlement due to the withdrawal of fluid (oil, natural gas, or water). Subsidence of this type can sometimes be measured in tens of feet and typically occurs in broad valleys underlain by thick sequences of alluvial sediments. There is no evidence of this type of subsidence in the project area.

Co-seismic subsidence is the other type of subsidence that can occur at subduction zone plate boundaries. Subsidence of this type was studied in depth for the draft report titled "Assessment of Potential Tsunami Run-Up at the New Humboldt Bay Power Plant Site" (PG&E 2008). This report indicates there would be approximately 3.2 to 6.5 feet of uplift at Humboldt Bay along the western portion of the project area, while the coast would experience subsidence north of the project area.

3.6.3.8 Liquefaction

Liquefaction is a phenomenon in which saturated, cohesionless soils, such as sand and silt, temporarily lose their strength and liquefy when subjected to dynamic forces such as prolonged ground shaking during an earthquake. Liquefaction typically occurs when groundwater is shallow (less than 50 feet below ground surface) and soils are predominantly granular and unconsolidated. The potential for liquefaction increases with shallower groundwater.

The potential for liquefaction along most of the existing power line is low to moderate. Groundwater occurs in unconfined portions of alluvium at depths less than 10 feet below ground surface (California Department of Water Resources 2004) and groundwater was encountered at depths of 3 feet to 5 feet during the Geotechnical Investigation at the project area (TRC 2017). The soils and clays of the Hookton formation encountered during the geotechnical investigation on June 16, 2017 were observed to have enough clay content to be considered cohesive and too plastic to liquify. In the intervening valleys filled with recent alluvial deposits, the potential for liquefaction is high due to shallow groundwater and medium dense silt and sand layers. These areas are located within the boundaries of Potential Liquefaction from Slope Stability Zones mapped in Humboldt County (Humboldt County Planning and Building Department 2015).

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 APMs (see Section 3.9, Hydrology and Water Quality, for APMs related to erosion control):

> ***APM GEO-1. Minimization of Construction in Soft or Loose Soils.*** Where soft or loose soils are encountered during project construction, appropriate measures will be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, these measures may include excavating soft

or loose soils and replacing them with engineered backfill materials, or installing matting in temporary work areas.

APM GEO-2. Reduction of Slope Instability during Construction. Existing natural or temporarily constructed slopes affected by construction or operations will be evaluated for stability. Grading plans will be designed to limit the potential for slope instability and minimize the potential for erosion.

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 phase.

As described in Chapter 2.0, Project Description, the proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

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*

The project area does not cross any faults zoned under the Alquist-Priolo Act or any faults considered active or potentially active. Faults within 20 Miles and Major Offshore Faults). Surface fault rupture is most likely to occur on active faults (i.e., faults showing evidence of displacement within the last 11,000 years). Replacing the wires and structures along the existing power line will not increase the risk of loss, injury, or death from rupture of known earthquake faults. Therefore, no impact.

ii) Strong seismic groundshaking? *No Impact*

Judging from the activity of major regional seismic sources (see Table 3.6-3 and Table 3.6-4), it is likely that the project will be exposed to at least one moderate or greater earthquake located close enough to produce strong ground shaking in the project area. The greatest potential for strong seismic ground shaking comes from the active Little

Salmon fault, which has an estimated recurrence interval of 400 to 1,000 years (Hart 1999). The estimated peak ground acceleration (PGA) of an event on the Little Salmon fault is 0.4g to 0.8g.

Because seismic waves attenuate with distance from their source, estimated bedrock accelerations are highest for portions of the existing power line near the fault zone and decrease with distance from the fault. Local soil conditions may amplify or dampen seismic waves as they travel from underlying bedrock to the ground surface. In addition to the Little Salmon fault, other active or potentially active faults also present significant potential for strong ground shaking within the region.

Generally, overhead transmission lines can accommodate strong ground shaking. In fact, wind-loading design requirements for overhead lines are generally more stringent than those developed to address strong seismic ground shaking. The potential impact from seismic ground shaking on the reconductored power line will not change over existing conditions with current poles and wires. Therefore, no impacts and mitigation is not required.

iii) Seismic-related ground failure, including liquefaction? *No Impact*

The existing power line crosses areas mapped as having a potential liquefaction risk. For liquefaction-induced sand boils or fissures to occur, the water pressure in the liquefied strata must be large enough to break through the surface layer. Approximately 48 and 30 feet of nonliquefiable material were found overlying the relatively thin potential liquefiable layers at the two geophysical investigation test sites, CPT-1 and CPT-4 (TRC 2017). TSPs, LSTs, and wood or LDS poles will be engineered to meet loads generated by forces, such as wind activity, and located proximate to existing structures. Installation of new conductor and replacement structures will not increase the risk of loss, injury, or death from seismic ground failure or liquefaction as compared to existing conditions. Therefore, risks to people or structures from seismic-related ground failure, including liquefaction, will be no impact.

iv) Landslides? *Less-than-Significant Impact*

Although there are several existing landslides in the project area, the surface expression of these features is subdued, suggesting they are relatively old (Kilbourne 1985, Kelley 1984, and Wills 1990). However, the slides are still potentially active and may experience movement during large earthquakes or periods of significant precipitation. No evidence is seen of recent movement of these landslides.

There is a low probability for landslides in the project area because of the relatively flat topography and the lack of geomorphic features. Mapped landslide hazard areas exist within or adjacent to the project area, but are considered very low potential on the majority of low angle slopes in the project area, and higher potential on steep slopes. Therefore, risks to people or structures from seismic-related ground failure, including liquefaction, will be less than significant. Implementation of APM GEO-2 will further reduce this to less than significant impact.

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

The potential for erosion varies across the project area and is low to moderate in the flat-lying areas and moderate to high on steeper terrain found where streams have incised the Hookton formation.

Replacement of existing wood and LDS poles with TSPs, LSTs, and wood and LDS poles will require excavations, some of which will occur in soils on slopes that have a moderate to high wind and/or water erosion potential. In addition, grading and/or scraping and vegetation clearing may be required for installing and removing structures and establishing work areas and helicopter landing zones. Construction sites will be accessed using existing access roads, some of which are unpaved. During clearing activities, vegetation will be mowed or grubbed, leaving root systems intact wherever possible, to encourage resprouting and minimize erosion. Because of the limited extent of earth-moving activities and the limited scope of construction activities, substantial erosion or loss of topsoil is not expected to occur. Therefore, the impact will be less than significant. Implementation of APM WQ-1, which requires a Stormwater Pollution Prevention Plan and best management practices designed to reduce erosion, will further reduce any less-than-significant impact.

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*

Portions of the existing power line are located on mild to moderate slopes with a variety of soils, including sandy soils and soft clay soils, which have potential to become unstable during construction activities. To prevent destabilization of natural slopes as a result of grading and other construction activities, construction design will identify landslide hazard areas and apply the appropriate engineering standards to ensure the integrity of the poles, towers, and power line. Further, APM GEO-2 will be implemented to reduce slope instability during construction. Therefore, project construction activities will not cause any geologic units or soils to become unstable, and impacts will be less than significant.

The potential for liquefaction or lateral spreading in most of the project area is low to moderate, with higher potential in valleys filled with recent alluvial deposits where pole and tower installation may be difficult. Where potential problems exist, APM GEO-1 will be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered during construction; therefore, impacts from liquefaction and lateral spreading will be less than significant.

The project area is not subject to subsidence, and reconductoring the existing power line does not require activities that will result in on- or off-site subsidence or collapse.

d) Would the project be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007 or 2010), creating substantial risks to life or property? *Less-than-Significant Impact*

Expansive soils have a clay content and mineralogy that renders them susceptible to volume increase when they absorb water, and volume decrease when they dry. Portions of the project area are located on expansive soils; the Bayside Silty Clay Loams found in the alluvial lowlands and in the vicinity of Humboldt Bay have a high shrink-swell potential and are therefore considered expansive.

New TSPs, LSTs, and wood and LDS poles will be installed proximate to existing wood and LDS poles. Poles and towers will be installed to depths sufficient to prevent shifting as a result of soil shrink-swell cycles. Standard construction practices will be used to mitigate hazardous soil conditions, if encountered (e.g., compact soil at pole and tower sites or wet sandy soils during augering). With the implementation of these standard construction practices, the project will not create substantial risks to life or property, and any impacts will be less than significant.

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

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

3.6.5 REFERENCES

California Department of Conservation. 2002. California Geomorphic Provinces. Online: http://www.conservation.ca.gov/cgs/Documents/cgs-notes/Note_36.pdf. Accessed: September 19, 2017. 4 pages.

_____ . 2008. Ground Motion Interpolator. Online: http://www.quake.ca.gov/gmaps/PSHA/psha_interpolator.html. Accessed: September 19, 2017. 1 page.

_____ . 2010. Fault Activity Map of California (2010). Online: http://maps.conservation.ca.gov/cgs/fam/. Accessed: September 18, 2017. 2 pages.

_____ . 2017. Information Warehouse: Landslides. Online: http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=landslides. Accessed: September 19, 2017. 1 page.

_____ . 2017. Seismic Hazards Mapping Act Fact Sheet. Online: http://www.conservation.ca.gov/cgs/shzp/webdocs/Documents/fact_sheet.pdf. Accessed: September 19, 2017. 2 pages.

California Department of Conservation and U. S. Geological Survey (CDC and USGS). 1996. Probabilistic Seismic Hazard Assessment for the State of California. California Division of Mines and Geology Open File Report 96-08. Online: https://pubs.usgs.gov/of/1996/0706/report.pdf. Accessed: December 11, 2016. 68 pages.

California Department of Water Resources. 2004. California's Groundwater Bulletin 118, North Coast Hydrologic Region, Eureka Plain Groundwater Basin. February 27.

Clarke, S.M. Jr. and Carver, G.A. 1992. *Late Holocene Tectonics and Paleoseismicity, Southern Cascadia Subduction Zone.* Science, New Series, Vol. 255, No. 5041. January 10, 1992. pp. 188-192. 6 pages.

Hart, E.W., compiler, 1999, Fault number 13, Mad River fault zone, in Quaternary fault and fold database of the United States: U.S. Geological Survey Online: https://earthquakes.usgs.gov/hazards/qfaults. Accessed: September 27, 2018

Hart, E.W., compiler, 1999. Fault number 12, Bald Mountain-Big Lagoon fault zone, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults. Accessed: November 27, 2018

Humboldt County. 2002. Chapter 10 Geologic, Seismic, and Soil Hazards of the Natural Resources and Hazards Report, September 2002. Online: http://humboldtgov.org/DocumentCenter/Home/View/1375. Accessed: September 20, 2017. 34 pages.

Humboldt County Planning and Building Department. 2015. Liquefaction Hazard Zones: Humboldt County, California, 2015. Humboldt County Planning and Building Department. Online:http://purl.stanford.edu/nk595pg0743.

Kelley, F.R. 1984. *Geology and Geomorphic Features Related to Landsliding, Arcata South 7.5´ Quadrangle, Humboldt County, California*. California Division of Mines and Geology Open-File Report OFR-84-39, 1 sheet, scale 1:24,000.

Kilbourne, R.T., Sholin, M.N., and Saucedo, G.B. 1980. *Geology for Planning, Eureka 7.5' Quadrangle; in: Geology for Planning, Eureka and Fields Landing 7.5' Quadrangles, Humboldt County, California*. California Division of Mines and Geology Open File Report OFR-80-9 S.F., map scale 1:24,000.

Marshall, Gerald J. and Mendes, Eric. 2005a. Geologic and Geomorphic Features Related to Landsliding, Elk River Watershed, Humboldt County, California.

Marshall, Gerald J. and Mendes, Eric. 2005b. Relative Landslide Potential with Geologic and Geomorphic Features Related to Landsliding, Elk River Watershed, Humboldt County, California.

Merriam, M. and Shantz, T. 2007. Caltrans Deterministic PGA Map Fault Identification Numbers (FID) Shown. September 2007. 1 page.

McLaughlin, R.J. and Harradine, F. 1965. Soils of Western Humboldt County California, University of California, Davis, in cooperation with Humboldt County.

McLaughlin et al., 2000. Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern Part of the Hayfork 30 x 60 Minute Quadrangles and Adjacent Offshore Area, Northern California: US Geological Survey Miscellaneous Field Studies Map MF-2336, https://pubs.usgs.gov/mf/2000/2336/

Northern California Earthquake Data Center (NCEDC). 2014. Northern California Earthquake Data Center. UC Berkeley Seismological Laboratory. Dataset. doi:10.7932/NCEDC. http://ncedc.org/ncedc_doi_metadata.html. Website accessed February 1, 2019.

Ogle, B.A. 1953. *Geology of the Eel River Valley Area, Humboldt County, California*. California Division of Mines, Bulletin 164. Online: https://archive.org/stream/geologyofeelrive00oglerich#page/34/mode/2up. Accessed: September 21, 2017. 1 page.

PG&E. 2008. Assessment of Potential Tsunami Run-Up at the New Humboldt Bay Power Plant Site.

TRC Solutions, Inc. 2017. Geotechnical Investigation, Humboldt Bay Reconductor, Eureka, California. September 28.

United States Department of Agriculture (USDA). Natural Resources Conservation Service (NRCS). 1925. Soil Survey of the Eureka Area, California. Online: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/eurekaCA1925/Soil_map.pdf. Accessed: September 19, 2017. 40 pages.

Wills, Christopher J. 1990. California Division of Mines and Geology Fault Evaluation Report FER-215, Little Salmon and related faults, Humboldt County. November 16.

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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. The implementation of the Applicant Proposed Measure(s) (APMs) described in Section 3.7.4.2, as well as those described in Section 3.3, Air Quality, 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 below 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 U.S. 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 Clean Air Act (CAA). On April 17, 2009, EPA found that CO_2, CH4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6) 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. This project is not impacted by this reporting regulation.

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 Jerry Brown signed Executive Order B-30-15 that added the intermediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030.

Executive Order B-55-18

In September 2018, Governor Jerry Brown signed Executive Order B-55-18, which establishes a statewide goal of reach carbon neutrality as soon as possible and no later than 2045.

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 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 431 million metric tons CO_2e (CARB 2017).

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 2014).

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.

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.

Senate Bill 32 and AB 197

On September 8, 2016, Governor Jerry Brown signed Senate Bill 32 and AB 197, which codified the 2030 GHG emissions reduction target of 40 percent below 1990 levels and provided 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 GHG 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. The NCUAQMD regulates local air quality and air quality sources in the project area. NCUAQMD's jurisdiction includes all of Humboldt County. In 2011, the NCUAQMD adopted Rule 111 (Federal Permitting Requirements for Sources of Greenhouse Gases) into the District rules to establish a threshold above which NSR and Federal Title V permitting applies, and to establish federally enforceable limits on the potential to emit greenhouse gases for stationary sources. The NCUAQMD notes that these are considered requirements for stationary sources and should not be used as a threshold of significance for stationary source projects. The NCUAQMD has not developed GHG thresholds for construction emissions. (NCUAQMD 2018)

Local

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

3.7.2.2 Methodology

Short-term construction emissions of CO_2e were evaluated. Detailed construction emissions were modeled using the same methods described in Section 3.3, Air Quality, and will be provided separately to CPUC staff. All GHG emissions were calculated for annual emissions in units of metric tons CO2e per year.

Long-term operational emissions of CO2e were not evaluated, as existing operations and maintenance activities will not change as a result of the project.

GHG emission calculations in this document were based on conservative estimates of emissions to ensure presentation of a conservative environmental analysis. This analysis may be revised, as needed, to reflect changes to the proposed project plans.

3.7.3 ENVIRONMENTAL SETTING

3.7.3.1 Regional Setting

GHGs are global concerns, unlike criteria air pollutants or toxic air contaminants that 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 (IPCC 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 result 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, NO_x, hydrofluorocarbons, perfluorocarbons, and SF_6. California is a substantial contributor to global GHG emissions. It is the second largest contributor in the United States and the 16th largest in the world (CEC 2006).

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 have adopted, or have recommended for adoption, a significance threshold of 10,000 metric tons CO_2e per year for stationary source projects. 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 suggests that approximately 1 percent of all stationary sources emit greater than 10,000 metric tons 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).

The NCUAQMD has not developed GHG thresholds for construction emissions. In the absence of NCUAQMD thresholds or guidance, PG&E has elected to determine the significance of GHG construction emissions consistent with the CPUC's approach in recent CEQA documents which is 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:

APM GHG-1. Minimize GHG Emissions.

- Maintain construction equipment in proper working conditions in accordance with PG&E standards.
- Minimize unnecessary construction vehicle idling time. The 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.
- 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 of 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage the recycling of construction waste where feasible.

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. 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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

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 of the project will generate GHG emissions over the project's approximately 6-month construction schedule. Construction-related emissions will result from land-based construction equipment (including off-road construction equipment and machinery, and vehicular traffic generated by commuting workers and material hauling and disposal), and helicopter activity. 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 GHGs.

Project construction emissions that will be associated with the use of off-road construction equipment—such as graders, backhoes, loaders, and cranes—were estimated for the project using CalEEMod. CalEEMod 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.

Table 3.7-2: Estimated Construction-Related GHG Emissions

Year	CO_2e metric tons without APMs	CO_2e metric tons with APMs[1]
Ground Equipment and Vehicles	735	698
Helicopter Operations	347	329
Total GHG Emissions over 6 Months	**1,082**	**1,027**
Total Annual GHG Emissions Amortized over 30 Years	**36.07**	**34.2**

[1]Reduction in GHG emissions assumes that implementation of APM GHG-1 will achieve a 5 percent reduction in emissions. Implementation of APM AQ-1 may further reduce GHG emissions, but this potential reduction is not quantifiable and is not included here.

As indicated in Table 3.7-, total GHG construction emissions in the form of CO_2e will be approximately 1,027 metric tons during the project's construction phase. These emissions amortized over a 30-year period equal approximately 34.2 metric tons 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 be cumulatively considerable and will not significantly contribute to global climate change. The impact will be less than significant. Implementation of APM GHG-1 will further reduce less-than-significant impacts.

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 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 project will not differ from current operation and maintenance activities along the line. Therefore, the project will not conflict with plans, policies, or regulations intended to reduce GHGs.

3.7.5 REFERENCES

California Air Resources Board (CARB). 2014 (May). Climate Change Scoping Plan. First Update. Sacramento, CA. Available: https://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm. Last reviewed: May 27, 2014. Accessed: October 2, 2018.

———. 2017 (June). California 1990 Greenhouse Gas Emissions Level and 2020 Limit. Available at: http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm. Accessed: October 2, 2018.

California Energy Commission (CEC). 2006. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004. Staff Final Report. Publication CEC-600-2006-013-SF. Sacramento, California. December 2006.

Intergovernmental Panel on Climate Change (IPCC). 2007 (February). Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland.

North Coast Unified Air Quality Management District. 2018. Air Quality Planning and CEQA web page. Available at: http://ncuaqmd.org/index.php?page=aqplanning.ceqa. Accessed: October 2, 2018.

South Coast Air Quality Management District (SCAQMD). 2008 Board Meeting Notes. Agenda No. 31. Table 1. December 5, 2008.

Swiss Federal Office of Civil Aviation (FOCA). 2015. Guidance on the Determination of Helicopter Emissions. December 2015.

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3.8 HAZARDS AND HAZARDOUS MATERIAL

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. An Environmental Data Resources, Inc. (EDR) DataMap Corridor Study report was obtained identifying hazardous sites near the project area (EDR 2017). A copy of the EDR report 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?	☐	☐	☐	☒

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
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

3.8.2 REGULATORY BACKGROUND AND METHODOLOGY

3.8.2.1 Regulatory Background

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 U.S. Environmental Protection Agency (EPA).

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 U.S. EPA the authority to regulate the discharge of pollutants and hazardous materials into the waters of the United States. As part of the CWA, U.S. EPA oversees and enforces the Oil Pollution Prevention regulation (40 CFR Part 112). The regulations describe the requirements for facilities to prepare, amend, and implement Spill Prevention, Control, and Countermeasure 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 U.S. EPA 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.

Federal Aviation Administration Regulations

The Federal Aviation Administration (FAA) regulates the safe use and preservation of navigable airspace. The FAA must be notified of any structures located in the airspace of an airport as defined in 14 CFR Section 77.9 (b)(1), (2), and (3), or new structures taller than 200 feet in height, to confirm that the proposed structures will not pose a threat to safety.

State

Hazardous Waste Control Law

The Hazardous Waste Control Law (HWCL) (California HSC Chapter 6.5 Section 25100 et seq.) authorizes Cal/EPA and the 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 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 North Coast Regional Water Quality Control Board (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 these activities to streamline the process for local businesses. The Humboldt County Public Health Branch, Hazardous Materials Unit, is approved by Cal/EPA as the CUPA for Humboldt County.

Hazardous Waste Fee Health and Safety Code

The Hazardous Waste Fee Health and Safety Code (California HSC Chapter 6.5, Section 25143 et seq.) provides definition and guidance on wood waste and its disposal. Wood waste is defined in part as poles, crossarms, pilings, and fence posts that have been previously treated with a preservative.

Wood waste materials removed from electric, gas, or telephone service is exempt from the requirements for disposal provided certain conditions are met. Conditions include: if the wood waste is not subject to regulation as a hazardous waste under a federal act; it is disposed of in a composite-lined portion of a municipal solid waste landfill that meets any requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code; and if the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the applicable RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code.

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.

Public Resources Code

Public Resources Code (PRC) Sections 4290–4293 identify construction, operation, and maintenance requirements to minimize fire hazards for structures located in State Responsibility Areas (SRAs).

- PRC Section 4292 addresses power line hazard reduction. It identifies the requirements for firebreaks around “any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole” in wildland areas.
- PRC Section 4293 provides specific clearances for power lines in wildland areas.

Fire Prevention Standards for Electric Utilities

The Fire Prevention Standards for Electric Utilities (CCR Title 14, Sections 1250-1258) provide definitions, maps, specifications, and clearance standards for projects under the jurisdiction of PRC Sections 4292 and 4293 in SRAs.

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 Humboldt County Public Works Department (Department) operates nine county airports. The Department has prepared an Airports Master Plan that establishes airport land use compatibility policies and applies these policies to Murray Field, which is the nearest airport to the project, approximately 1.2 miles away. The Humboldt County Airport Land Use Compatibility Plan (ALUCP), adopted in 1998, identifies the Airport Influence Area (AIA) and the Safety Compatibility Zones associated with Murray Field Airport (Hodges and Shutt 1998). The project is not within the AIA or Safety Compatibility Zones.

Adopted Emergency Response Plans/Evacuation Plans

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

The Humboldt County Office of Emergency Services is responsible for emergency response planning. The County has prepared an Emergency Operations Plan (Humboldt County 2015a) to ensure efficient coordination with all political subdivisions of government to protect the population in the event of emergency. Portions of the existing power line are within a tsunami inundation zone. The Humboldt County Emergency Operations Plan has adopted emergency response and evacuation planning measures for hazards such as tsunamis, including evacuation maps.

The Federal Emergency Management Agency approved the Humboldt Operational Area Hazard Mitigation Plan on March 20, 2014 (Humboldt County 2014). The mitigation plan includes an assessment of the planning area's risks from hazard events, such as earthquake, flood, tsunami, and wildfire. The plan also includes a list of proposed initiatives designed to minimize future hazard-related damage and serves as a coordinating document for the risk reduction efforts of participating planning partners.

3.8.2.2 Methodology

The methodology for analyzing potential impacts on the environment related to hazards and hazardous materials was based on review of publicly available information. Potential impacts on the environment and public health from hazardous materials were evaluated using information on the existing and historic land uses within the project alignment and adjacent properties to identify known soil and/or groundwater contamination sites to determine the likelihood of encountering hazardous materials during implementation of the project.

An EDR DataMap Corridor Study report (EDR report) was obtained from EDR and reviewed to screen for hazardous waste sites within and near the project alignment (EDR 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 EDR report includes information on sites identified within 1 mile of either side of the alignment that were identified in federal, state, and local databases related to hazardous materials and wastes, and maps showing the locations of these sites and will be provided separately to CPUC staff. The database search 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 criterion (d) (Table 3.8-1), the EDR report was used to identify sites along the routes that are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (Cortese List). Because the Cortese List is no longer specifically updated by the state, those requesting a copy of the Cortese List are now referred directly to the appropriate information resources contained on the websites of the boards or departments that are referenced in the statute. Therefore, the EDR report's listing of Cortese List sites was supplemented by reviewing the following:

- Sites listed on the Cal/EPA DTSC EnviroStor database (DTSC 2013).
- Sites listed on the State Water Resources Control Board (SWRCB) 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/State Board of Equalization 2015).

The potential for activities and equipment to pose fire hazards was evaluated through a review of state fire hazard maps from the California Department of Forestry and Fire Protection (CAL FIRE) website (CAL FIRE 2007) and the CPUC (CPUC 2017). This PEA references information obtained from the Humboldt County Public Health Branch of the Department of Health and Human Services, Hazardous Materials Unit (Humboldt County 2017a) and the Humboldt County Emergency Operations Plan regarding hazards and threats (Humboldt County 2015a).

3.8.3 Environmental Setting

The project corridor includes rural and urban coastal areas of Humboldt County and the City of Eureka with a range of uses from agriculture and timberlands to commercial, residential, and industrial. Associated hazards (e.g., tsunamis) and hazardous materials (e.g., agricultural pesticides, fuels, and industrial chemicals) are present in this setting.

A portion of the project corridor is within the tsunami inundation zone, and tsunamis are a recognized hazard (DOC 2009; Humboldt County 2017b). A tsunami is an ocean wave produced by a submarine earthquake, landslide, or volcanic eruption. Tsunamis have been recorded at the south end of Humboldt Bay, and have previously inundated the lower areas around Buhne Hill, including Humboldt Bay Power Plant (PG&E 2006).

3.8.3.1 Airports

The County-owned Murray Field Airport on Arcata Bay is approximately 1.2 miles north of the existing power line, and the Eureka Municipal Airport on the Samoa peninsula is approximately 2.1 miles northwest of the project alignment.

The Humboldt County ALUCP, adopted in 1998, identifies the Airport Influence Area and the Safety Compatibility Zones associated with Murray Field Airport (Hodges and Shutt 1998). The project alignment is located outside the ALUCP Airport Influence Area and the Safety Compatibility Zones for Murray Field. The Eureka Municipal Airport is not one of the airports covered by the ALUCP and is more than two miles from the power line.

3.8.3.2 Schools

The project alignment is located within 0.25 miles of two public schools and three private preschools. Table 3.8-2 Schools in the Project Vicinity lists these schools and their proximity to the project area. See Figure 3.12-1: Non-residential Sensitive Receptors for a depiction of the location of the schools.

Table 3.8-2: Schools in the Project Vicinity

School	Education Level	Address	Distance from Project Area (miles)
Eureka Unified School District			
Grant Elementary School	K–5	3901 G St, Eureka	0.01
South Bay Union School District			
South Bay Elementary School	4-6	6077 Loma Ave, Eureka	0.26*
Other			
Little People’s Corner	Preschool	3844 Walnut Street, #C, Eureka	0.01
Play & Learn Preschool	Preschool	4865 Hidden Meadows Lane, Eureka	0.05
Powell Family Childcare	Preschool	2232 Hemlock Street, Eureka	0.08

* The South Bay Elementary School is located just outside 0.25 mile from the project alignment, but is included here as a sensitive receptor because of helicopter work that will take place in the area.

3.8.3.3 Existing Hazardous Materials/Sites

The existing power line corridor is not known to contain any contamination or other hazardous material-related risks to human health and safety. The regulatory database searches described in Section 3.8.2.2, Methodology were reviewed to identify any known contaminated sites within a 0.25-mile search radius of the project area.[1] No National Priorities List (Superfund) sites are located within 0.25 mile of the project area.

Review of the SWRCB GeoTracker and the DTSC EnviroStor online databases identified a voluntary cleanup of soil contaminants at Humboldt Bay Power Plant, which is located adjacent to Humboldt Bay Substation but outside of the project area. The SWRCB GeoTracker online database did not identify any open leaking underground storage tank (LUST) contamination sites within 0.25 mile of the project alignment. With the exception of the Humboldt Bay Power Plant, the DTSC EnviroStor online database did not identify any open contamination sites within 0.25 mile of the project area.

The EDR report (EDR 2017) identified 97 potentially hazardous sites located within 0.25 miles of the project alignment; however, all the identified sites are administrative in nature, apart from the Pacific Gas and Electric Company (PG&E) Humboldt Bay Power Plant, which has an active site investigation for soil contamination (polynuclear aromatic hydrocarbons, asbestos-

[1] The staging area at Fields Landing is within the 1-mile radius covered by the EDR report, but the search area does not extend 0.25-mile south of this staging area.

containing materials, and total petroleum hydrocarbons diesel and motor oil). The EDR report identified 10 historic LUST sites. Cleanup activities have been completed at all sites and all cases are closed. The study also identified two large-quantity hazardous waste generators within 0.25 miles of the project alignment (EDR 2017). The first site is Humboldt Substation and the second site is the City of Eureka Water Treatment Plant. In addition, the Humboldt Orthopedic Associates, Inc. was identified as a small-quantity hazardous waste generator within 0.25 mile of the project alignment.

Other sites identified by the EDR report include several currently permitted underground storage tanks (USTs), sites with historic USTs, brownfields, gas stations, or dry cleaners, sites that maintain wastewater discharge permits, sites with pesticide licenses, one clandestine drug lab, sites listed in the Hazardous Materials Information Reporting System, sites for which DTSC receives hazardous waste manifests, sites for which toxics and criteria pollutant emissions data is collected by the Air Review Board and local air pollution agencies, and sites listed in the county’s CUPA database (EDR 2017).

The identified sites are not within the existing power line alignment and only minimal excavation activities will occur for placement of poles and footings; therefore, the sites identified in the EDR report are not anticipated to affect the project.

Reconductoring of the power line will require the replacement of existing wood poles with new wood poles and structures. The existing treated wood poles, once removed from the site, are considered hazardous material and will be disposed of at a licensed Class 1 or a composite-lined portion of a solid waste landfill.

No serpentine/ultramafic bedrock is reported within 0.5 mile of work sites; therefore, no naturally occurring asbestos is expected to be encountered during the project activities.

Based on known agricultural use, there is potential for the presence of pesticides and herbicides in soil in the project alignment.

3.8.3.4 Wildland Fire Hazards

The new poles and power line will replace existing facilities within the existing power line alignment. As defined by CAL FIRE, the project area and vicinity are located within the SRA and a Local Responsibility Area (LRA). As shown on Figure 3.8-1: Tsunami and Wildland Fire Rating Zones, the southern portion of the power line is located within areas with low to moderate fire hazard severity zones, and the northern portion of the alignment crosses moderate to high fire hazard severity zones (CAL FIRE 2007; Humboldt County 2015b). Figure 3.8-1 also identifies that the project area is not within an area identified by the CPUC as at risk from utility associated wildfires. However, a Tier 2 fire-threat area — defined an area where there is an elevated risk from utility associated wildfires — is located to the east of the project area, as indicated. Irrigated and cultivated agricultural fields and paved road corridors reduce the potential for wildland fire in the project vicinity. Fire protection services and equipment near the project area are discussed in detail in Section 3.14, Public Services.

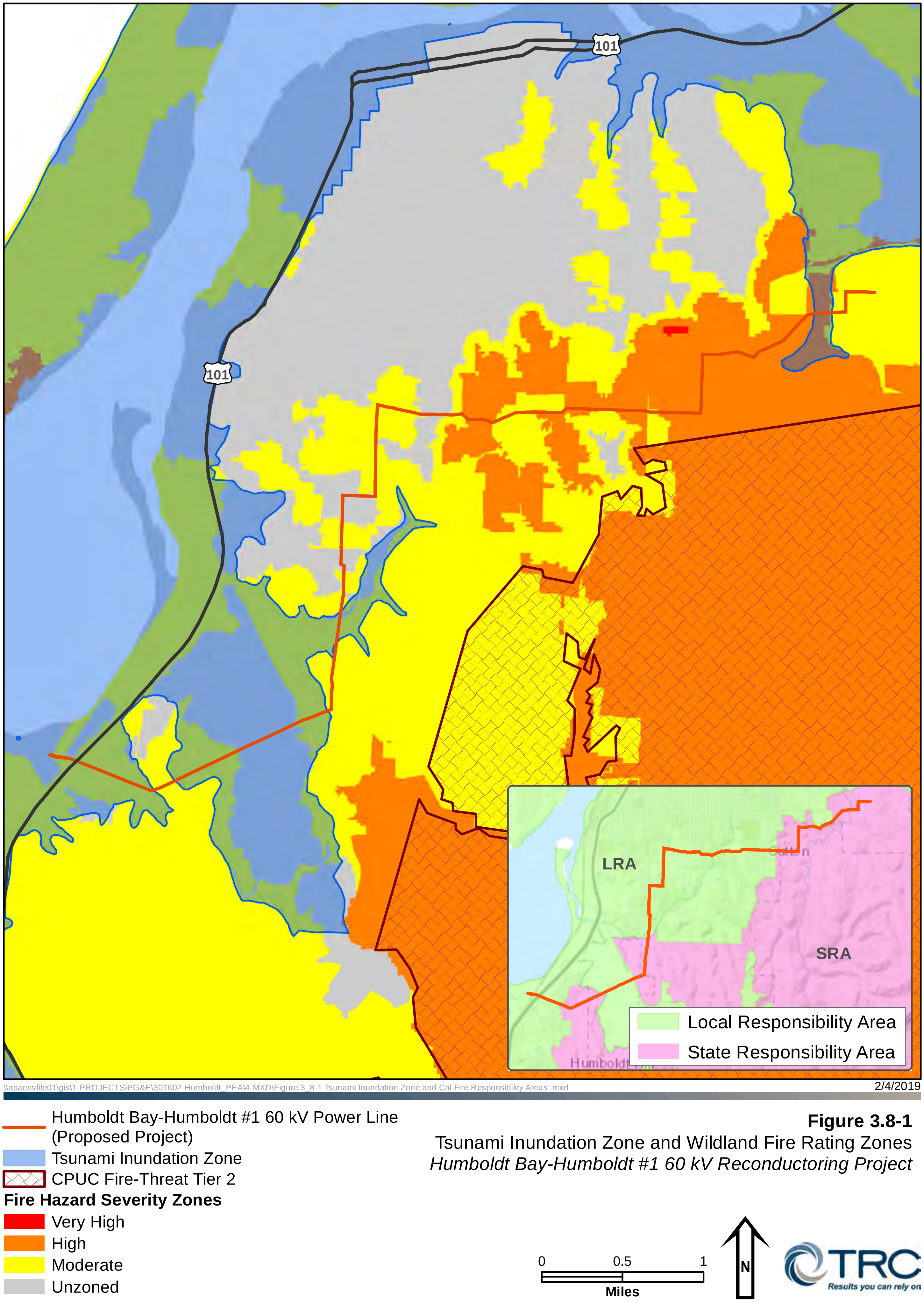


Figure 3.8-1
Tsunami Inundation Zone and Wildland Fire Rating Zones
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

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.

3.8.4.2 Applicant-Proposed Measures

PG&E will implement the following APMs for hazards and hazardous materials (HAZ):

> ***APM HAZ-1: Hazardous-Substance Control and Emergency Response***. PG&E will implement its hazardous substance control and emergency response procedures to ensure the safety of the public and site workers during construction. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on site. If necessary to store chemicals on site, they will be managed in accordance with all applicable regulations. Material safety data sheets will be maintained and kept available on site, as applicable.
>
> No known soil contamination was identified within the project site. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are unearthed during site grading or excavation activities, the excavated soil will be tested, and if contaminated above hazardous waste levels, will be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.
>
> All hazardous materials and hazardous wastes will be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following:
>
> - Proper disposal of potentially contaminated soils.
> - Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources.

- Emergency response and reporting procedures to address hazardous material spills.
- Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work will be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit.

PG&E will complete a standard Emergency Action Plan Form as part of project tailboard meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailboard information.

APM HAZ-2: Worker Environmental Awareness Program (WEAP) for Health, Safety, and Environment

The WEAP will include the following components related to hazards and hazardous materials:

- PG&E health, safety, and environmental expectations and management structure.
- Applicable regulations.
- Summary of the hazardous substances and materials that may be handled and/or to which workers may be exposed.
- Summary of the primary workplace hazards to which workers may be exposed.
- Overview of the measures identified in APM HAZ-1.
- Overview of the controls identified in the Stormwater Pollution Prevention Plan under APM HYDRO-1.

This measure will be coordinated with worker training required under APM BIO-1 and APM WQ-2.

APM HAZ-3. Fire Risk Management. PG&E will follow its standard fire risk management procedures, including safe work practices, work permit programs, training, and fire response. Project personnel will be directed to park away from dry vegetation. During fire season, all motorized equipment driving off paved or maintained gravel/dirt roads will have federal- or state-approved spark arrestors. All off-road vehicles will be equipped with a shovel and a backpack pump filled with water and all fuel trucks will carry a large fire extinguisher with a minimum rating of 40 B:C.

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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV

Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

For the purposes of the impact analysis, the locations of the existing structures are considered part of the existing conditions.

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*

The project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Project construction will require the use of vehicles and other motorized construction equipment. Although this equipment requires the use of fuels and hazardous materials, such as gasoline, diesel, oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids, these materials will be transported according to DOT standards and used in designated construction staging areas or other suitable locations identified prior to the onset of construction.

During construction activities, there is an increased potential for an accidental release of fuels or other fluids from a vehicle or motorized piece of equipment. Relatively small quantities of hazardous materials will be stored and used within the project area. Fuels, hazardous materials, and hazardous wastes will be transported, stored, handled, and disposed of in accordance with relevant regulations and PG&E's existing hazardous substance control and emergency response procedures, as described in APM HAZ-1.

Treated wood poles, once removed from the site, and petroleum products, machinery fluid (such as hydraulic fluid), and cleaning fluids associated with construction equipment are considered hazardous wastes that will be generated by the project. Treated wood poles and other hazardous wastes that cannot be recycled will be removed from the project area during construction and will be managed under the utility exemption of the California Hazardous Waste Fee Health and Safety Code. Treated wood waste will be transported off site and collected in project-specific containers either at a PG&E service center that is designated as a PG&E consolidation site or the project's primary staging area. Once containers are filled, the waste will be transported to an appropriately licensed Class I or Class II landfill or the composite-lined portion of a solid waste landfill authorized to handle such materials. The transport and disposal of the treated wood waste will not pose a significant hazard to the environment or the public. Therefore, the potential impact will be less than significant.

Based on known agricultural use, there is potential for the presence of pesticides and herbicides in the soils within the project alignment. The presence of suspected contaminated soil will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are unearthed during site grading activities or excavation activities, the excavated soil will be tested, and if contaminated above hazardous waste levels, will be contained and disposed of at a licensed waste facility as described in APM HAZ-2.

No serpentine/ultramafic bedrock is reported within 0.5 miles of work sites. Therefore, no naturally occurring asbestos is expected to be encountered during the project activities.

Because fuels, hazardous materials, and wastes will be transported, stored, handled, and disposed of in accordance with relevant regulations and standard PG&E protocols, the project will not create a significant hazard to the public or environment. Impacts will be less than significant. Implementation of PG&E's existing hazardous substance control and emergency response procedures, as described in APM HAZ-1 and the WEAP described in APM HAZ-2 will further reduce less-than-significant impacts.

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

As discussed above, project construction will require the use of motorized heavy equipment, including trucks. During construction activities, there is an increased potential for an accidental release of fuels or other fluids from a vehicle or motorized piece of equipment. Relatively small quantities of hazardous materials will be stored and used within the project area. Fuels and hazardous materials and wastes will be transported, stored, used, and disposed of in accordance with relevant regulations and PG&E's existing hazardous substance control and emergency response procedures, as described in APM HAZ-1.

The project will not create a significant hazard to the public or environment through accidental releases of hazardous materials and impacts will be less than significant. Implementation of APM HAZ-1 and the WEAP described in APM WQ-2 will further reduce less-than-significant impacts.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? *Less-Than-Significant Impact*

No acutely hazardous materials or waste will be used or generated by the project. Five schools are located within approximately 0.25 mile of the project (See Figure 3.12-2 for the location of schools). Treated wood poles, once removed from the site, and petroleum products, machinery fluid (such as hydraulic fluid), and cleaning fluids associated with construction equipment, are considered hazardous materials that will be used within the project alignment within 0.25 mile of the schools.

Given the small quantities of these fluids that will be used within 0.25 mile of the five schools, any impacts from their use or handling will be less than significant and will be further reduced through implementation of APM HAZ-1 and the WEAP as described in APM HAZ-2. Further, treated wood poles will be removed to a licensed Class 1 or composite-lined portion of a solid waste landfill. Therefore, the potential impact will be less than significant.

No serpentine/ultramafic bedrock is reported within 0.5 mile of work sites. Therefore, no naturally occurring asbestos is expected to be encountered during the project activities.

Based on known agricultural use, there is potential for the presence of pesticides and herbicides in the soils within the project alignment. 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. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are unearthed during site grading or excavation, the excavated soil will be tested, and if contaminated above hazardous waste levels, will be contained and disposed of at a licensed waste facility as described in APM HAZ-1.

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*

The project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. No Superfund or state response sites are known to exist within 0.25 mile of the project area; therefore, no impact will occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 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*

The County-owned Murray Field Airport on Arcata Bay is approximately 1.2 miles north of the existing power line; however, the project area is located outside the airport land use planning area, therefore, no impact 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*

The project is not located in the vicinity of a private airstrip, and accordingly, no impact will occur.

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

Portions of the existing power line are within an areas of low, moderate, and high fire risk as described above, a tsunami inundation zone (see Section 3.9.3.6 of the Hydrology and Water Quality Chapter), and in proximity to fault zones which can produce earthquakes (see Section 3.6.3.4 of the Geology Chapter). The Humboldt County Emergency Operations Plan provides a framework for the Humboldt Operational Area agencies to respond to any emergency requiring multiagency participation and/or activation. Project-related road closures will occur in accordance with encroachment permit conditions and will not impede emergency response. The project will not impair the implementation of or physically interfere with an adopted emergency response or evacuation 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? ***Less-than-Significant Impact***

As shown in Figure 3.8-1: Tsunami Inundation Zone and Wildland Fire Rating Zones, the southern portion of the power line is located within areas with low to moderate fire hazard severity zones, the northern portion of the alignment crosses moderate to high fire hazard severity zones (CAL FIRE 2007; Humboldt County 2015b), and the project is not within an area mapped by the CPUC as at risk from utility associated wildfires. Heat or sparks from vehicles or equipment have the potential to ignite dry vegetation and cause fires. In accordance with the most recent edition of the Uniform Fire Code section 1109.5, and as part of standard construction practice, PG&E's policy of no smoking on construction sites will be enforced. With implementation of APM-HAZ-3 and the WEAP described in APM HAZ-2, along with PG&E's standard health and safety and fire prevention plans and programs, the risk of wildland fires associated with the project will be minimized and potential impacts will be less than significant.

3.8.5 REFERENCES

California Department of Forestry and Fire Protection (CAL FIRE). 2007. *Fire Hazard Severity Zones, Humboldt County FHSZ Map.* Online: http://www.fire.ca.gov/fire_prevention/fhsz_maps_humboldt. Accessed on October 24, 2017.

California Department of Toxic Substances Control (DTSC). 2013. *Envirostor*. Online: Accessed on February 12, 2013.

California Public Utilities Commission (CPUC). 2018. CPUC Fire-Threat Map. Adopted by CPUC January 19, 2018. Online: http://www.cpuc.ca.gov/firethreatmaps/. Accessed on December 26, 2018.

Environmental Data Resources Inc. (EDR). 2017. *EDR DataMap Corridor Study®*. Humboldt Bay-Humboldt #1 60 KV, Eureka, CA 95503, Inquiry Number: 5059889.5s. September 27, 2017.

Hodges and Shutt. 1998. *Humboldt County Airport Land Use Compatibility Plan*. Amended January 27, 1998. Online: http://co.humboldt.ca.us/board/agenda/questys/mg161681/as161718/as161719/ai161842/do161844/bosagendaitem.pdf. Accessed on October 19, 2017.

Humboldt County. 2015. *Humboldt Operational Area Hazard Mitigation Plan.* Online: https://humboldtgov.org/374/Emergency-Operations-Plan. Accessed on September 25, 2018.

______. 2015a. *Humboldt County Emergency Operations Plan*. Online: http://www.humboldtgov.org/374/Emergency-Operations-Plan. March 2015. Accessed on November 27, 2017.

______. 2015b. *Central Humboldt Flood Zones and Fire Hazards*. April 1, 2015. Online: http://humboldtgov.org/documentcenter/view/1749. Accessed on November 28, 2017.

______. 2017a. *Hazardous Materials Unit at the Public Health Branch of the Department of Health and Human Services*. Online: http://humboldtgov.org/684/Hazardous-Materials-Unit. Accessed on October 24, 2017.

______. 2017b. *Office of Emergency Services: Humboldt Bay Region Tsunami Evacuation Maps*. Online: http://humboldtgov.org/documentcenter/view/807. Accessed on November 27, 2017.

PG&E. 2006. *Humboldt Bay Repowering Project Application for Certification*. September 29, 2006. Online: http://www.energy.ca.gov/sitingcases/humboldt/documents/applicant/afc/Volume_01/. Accessed on October 24, 2017.

State Water Resources Control Board (SWRCB). 2017. *Geotracker*. Online: https://geotracker.waterboards.ca.gov. Accessed on October 26, 2017.

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 with implementation of Applicant-Proposed Measures (APMs) described in Section 3.9.4. 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 U.S. Army Corps of Engineers (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.

Section 10 of the Rivers and Harbors Appropriation Act of 1899

Section 10 of the Rivers and Harbors Act of 1899 requires authorization through USACE for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. Section 10 permits are required for work on facilities within navigable waters, including transmission towers and boardwalks, as well as for work on power lines that cross over navigable waters.

Clean Water Act Section 404

Section 404 of the Federal Clean Water Act (CWA) (33 USC Section 1251 et seq.) requires a permit from the USACE for the discharge of dredged or fill material into "waters of the United States," which include rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b).

State

Clean Water Act Section 303(d)

CWA Section 303(d) (33 USC Section 1313) requires states, territories, and authorized Tribes to develop a list of waters within its boundaries that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law further requires that these jurisdictions establish priority rankings for water on the lists and develop action plans, called Total Maximum Daily Loads (TMDLs), to improve water quality (SWRCB 2012). The Regional Water Quality Control Boards (RWQCBs) and the State Water Resources Control Board (SWRCB) implement this federal regulation in California.

Clean Water Act Section 401

CWA Section 401 (33 USC Section 1251 et seq.) requires states to certify whether projects subject to federal permits meet state water quality standards. In California, the RWQCBs and SWRCB issue such certifications. The project is under the jurisdiction of the North Coast Regional Water Quality Control Board (North Coast Water Board; Region 1). If the project requires a USACE permit, a Water Quality Certification will be required.

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 best management practices (BMPs) that are designed to reduce potential impacts to surface water quality during project construction and operation.

Porter-Cologne Water Quality Control Act (California Water Code, Division 7)

Under this state law, the SWRCB has authority over state waters and water quality. "Waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code Section 13050[e]). Examples include, but are not limited to rivers, streams, lakes, bays, marshes, mudflats, unvegetated and seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. The RWQCBs have local and regional authority. The North Coast Water Board has authority in the project area. The RWQCBs prepare and periodically update Basin Plans (water quality control plans), which establish:

- beneficial uses of water designated for each protected water body;
- water quality standards for both surface water and groundwater; and
- actions necessary to maintain these water quality standards.

Projects that will discharge waste to waters of the state must file a report of waste discharge with the appropriate RWQCB, if the discharge could affect the quality of waters of the state (Article 4, Section 13260). The RWQCB will issue waste discharge requirements or a waiver of the waste discharge requirements for the project. The requirements will implement any relevant water quality control plans that have been adopted, and must take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose (Article 4, Section 13263).

Fish and Game Code Section 1602

This section of California law protects the natural flow, bed, channel, and bank of any river, stream, or lake under the jurisdiction of the California Department of Fish and Wildlife (CDFW). Notification to CDFW is required for activities that would:

- substantially divert or obstruct the natural flow of a jurisdictional river, stream, or lake;
- substantially change or use material from the bed, channel, or bank of a jurisdictional river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbed, flaked, or ground pavement where it can flow into a river, stream, or lake.

CDFW reviews the notification and determines if the activity may substantially adversely affect fish and wildlife resources. If so, CDFW will issue a Streambed Alteration Agreement for the activity.

Fish and Game Code Section 5650

This section of California law makes is unlawful to deposit in, permit to pass into, or place where it can pass into waters of the state specific pollutants or any substance or material deleterious to fish, plant life, mammals, or bird life.

Local

Because the California Public Utilities Commission (CPUC) has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. Pacific Gas and Electric (PG&E) will secure ministerial permits, as required. The following summary is provided for informational purposes and to assist with CEQA review.

Grading Permits

Within their respective jurisdictions, the City of Eureka and Humboldt County require and enforce 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.

The City of Eureka's Construction Site Erosion Control Ordinance requires an Erosion Control Permit for all clearing, grading, excavations, or fill within the city limits (City of Eureka 2008). The ordinance exempts construction sites greater than 50 feet away from the edge of a delineated wetland, stream, or stream channel and disturbing fewer than 2,500 square feet from the provisions of the ordinance.

Humboldt County's Grading, Excavation, Erosion, and Sedimentation Control Ordinance specifies requirements for grading permits and defines grading as all grading, filling, land contouring, clearing and grubbing, drainage activities, site preparation, and road building. Applications for a ministerial county grading permit must include an Erosion Control Plan and a detailed drainage plan, including any drainage restrictions and temporary sediment control measures (Humboldt County 2018). PG&E will apply for any necessary, ministerial grading permits required by the City or County. Because the CPUC has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary approvals.

3.9.2.2 Methodology

Water resources and potential impacts to hydrology and water quality as a result of the project were evaluated by reviewing water quality studies, water management plans, and relevant information from federal, state, and local water resource agencies with jurisdiction in the project area. These included Humboldt County's General Plan, Hazard Management Plan, and Municipal Code; the North Coast Water Board Basin Plan; and shoreline inventory reports prepared for the State Coastal Conservancy and Humboldt County. Federal Emergency Management Agency (FEMA) maps and Humboldt County's report on Flood Zones and Fire Hazards were referenced to identify flood zones in proximity to the project area, and local plans, such as the Humboldt Bay Municipal Water District Groundwater Management Plan, were reviewed for relevant policies regarding water quality and protection. United States (U.S.) Geological Survey (USGS) 7.5-minute series quadrangle maps, aerial photography, and National Wetland Inventory maps of the project area were also examined to identify major water features, wetlands, and drainage patterns. Information regarding local groundwater formations was obtained from the California Department of Water Resources website, Humboldt Bay Municipal Groundwater Management Plan, and the Humboldt Bay Municipal Water District Urban Water Management Plan, as groundwater is the primary source of domestic water in the area. General reconnaissance-level surveys, which were conducted to document potentially jurisdictional wetlands and drainages, and subsequent wetland delineation surveys are detailed in Section 3.3.2.2, Biological Resources Methodology.

Areas of existing soil and water quality impacts were identified by searching federal and state regulatory agency databases that track sites with known, suspected, or potential hazardous substance contamination (e.g., underground storage tanks and landfills). The results of the database search are provided in Section 3.7, Hazards and Hazardous Materials.

General reconnaissance-level surveys were conducted April 16–20 and June 30, 2012, and the area was reassessed in 2016 and 2018, to document potentially jurisdictional wetlands and drainages. The 2012 survey was performed within a 310-acre area that included a 300-foot-wide corridor centered on the existing power line, a 30-foot wide corridor bordering all proposed access roads or unpaved roads that required improvement (as of 2012), and a 150-foot radius around all pull sites and staging areas proposed in 2012. Additional surveys were performed on June 21, 23–24, and 28–29, 2016, and on July 31–August 3 and August 7, 2018 to cover the entire project area.

Dominant habitat and general hydrological characteristics found along the power lines, access roads, overland routes, and areas surrounding the substations were recorded. Drainage areas and other hydrologic features were identified and assessed for their potential to be considered jurisdictional by the California Department of Fish and Wildlife (CDFW), the North Coast Water Board, or USACE.

3.9.3 Environmental Setting

The project is located within the City of Eureka and unincorporated parts of Humboldt County in Northern California adjacent to Humboldt Bay.

3.9.3.1 Regional Setting

The project is located within the North Coastal Basin, which is bounded on the west by the Pacific Ocean, on the north by the Klamath River, on the east by the Sacramento Valley, and on the south by the Marin-Sonoma area. Most of the basin consists of rugged, forested coastal mounts dissected by six major river systems. The basin is divided into nine hydrologic units, known as subbasins. The project is located within the Eureka Plain subbasin, an approximately 220-square mile watershed encompassing the largest urban center in Humboldt County, along with steep, forested areas subject to timber harvest, low-lying coastal marshlands, and Humboldt Bay.

Humboldt Bay is the largest enclosed bay on the west coast between San Francisco Bay and Coos Bay, Oregon. It provides numerous and diverse beneficial uses including navigation, subsistence, commercial, and recreational fishing, recreation, and fish and wildlife habitat. Humboldt Bay is listed as impaired under Section 303(d) of the Clean Water Act for dioxin and PCBs.

Several Eureka Plain rivers and streams that drain to the bay are listed as impaired for sediment (i.e., Jacoby Creek, Elk River, and Freshwater Creek) and indicator bacteria (i.e., Jolly Giant Creek, Gannon Slough, and Elk River). In addition, particular problems are known to exist in the Eureka Plain groundwater basin as a result of agricultural, industrial, and commercial chemical handling, storage, and disposal practices (North Coast Water Board 2014).

The Eureka Plain subbasin is interdependent with the Mad River subbasin, which provides water surface storage for the Eureka Plain. The regulated Ruth Reservoir on the Mad River controls the output of municipal and industrial water supply for the Eureka/Arcata area by exporting Mad River water to the Eureka Plain.

The existing power line is located within low-lying coastal areas adjacent to Humboldt Bay on the western margin of the Eureka Plain. Project elevations range from 6 to 200 feet above mean sea level, and the surface topography is relatively flat.

3.9.3.2 Climate

The project is located in a maritime climate (NOAA 2017). Owing to its proximity to the Pacific Ocean, the project area experiences moderate temperatures and considerable precipitation with high relative humidity prevailing throughout the year.

The rainy season lasts from October through April, during which the Humboldt Bay area can receive up to 38 inches of precipitation as periodic East Pacific storms make landfall. Measurable rainfall in the Humboldt Bay area occurs 118 days a year. Rainfall is usually light and long-lasting, rather than short, drenching downpours. The dry season, lasting from May through September, is marked by regular intrusions of low clouds and marine fog. The combination of salt rich marine aerosols and high relative humidity leads to increased corrosion of exposed metals.

Summer temperatures are moderated by a prevailing northwest wind that blows across the cold up-welling water, which is almost always present along the Humboldt County coast.

The record temperatures in Eureka range from a low 20° of Fahrenheit (F) to a high of 87° F. Typically, the coldest lows are in the mid-30s F and the warmest highs reach the mid-70s F. (NOAA 2017).

3.9.3.3 Surface Water

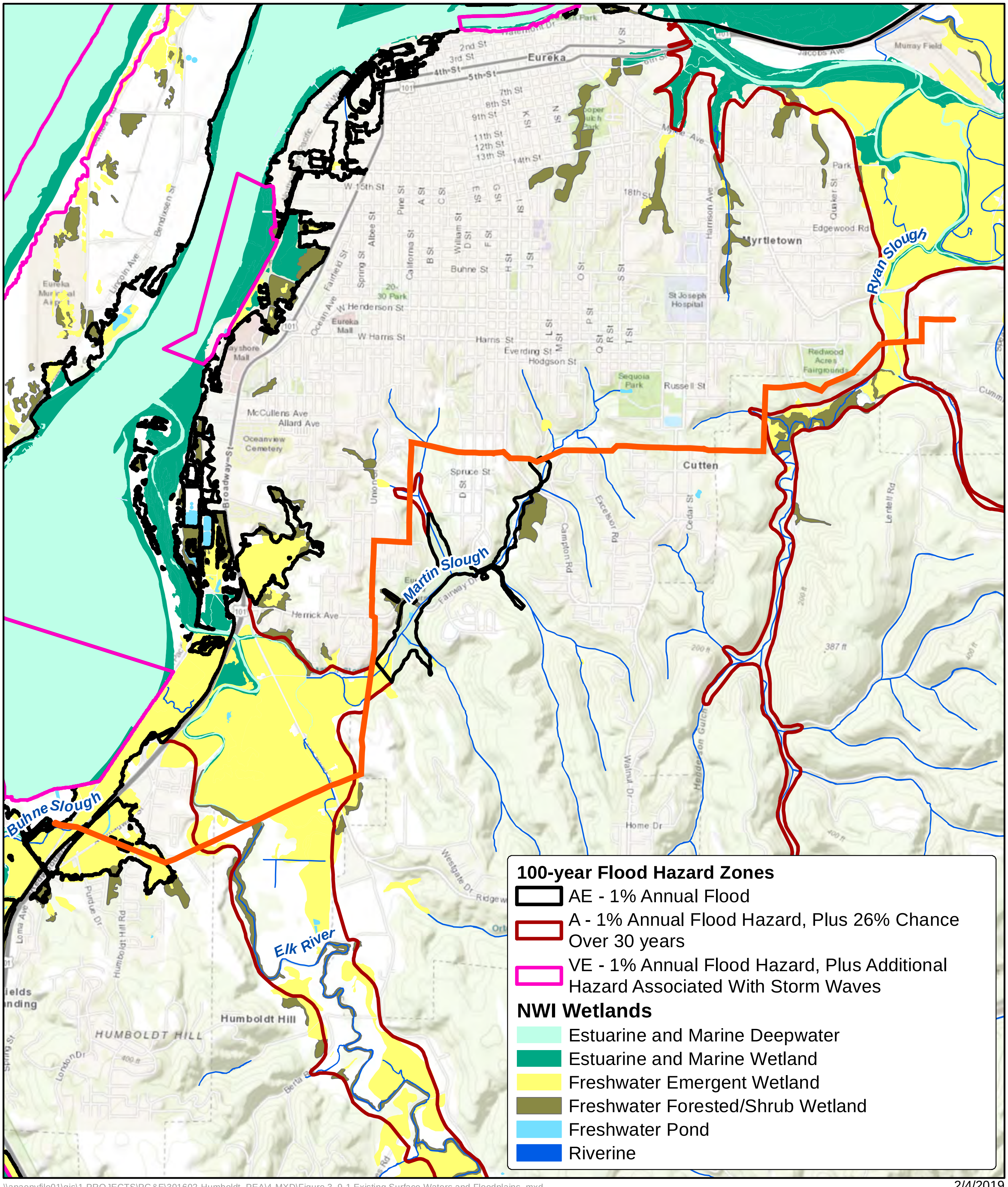
The existing power line crosses through two watersheds, Elk River and Freshwater Creek watersheds, both of which drain to Humboldt Bay. Elk River watershed is the largest freshwater tributary to the bay; Freshwater Creek watershed is the second largest. Both watersheds collect water from the steep, forested coastal hills in the east and drain west across coastal valleys and alluvial plains. Elk River empties directly into Humboldt Bay. Freshwater Creek empties into Arcata Bay just north of Eureka. Timber is harvested near the headwaters of Freshwater Creek and Elk River and naturally high levels of sediment in lower reaches have led to the inclusion of both stream systems on the 303(d) list as sediment-impaired waterbodies. Several creeks and sloughs cross the project area, as described further below and shown in Figure 3.9-1: Existing Surface Waters and Floodplains. For a description of wetlands in the project area, refer to Section 3.4, Biological Resources.

Buhne Slough

Buhne Slough is a seasonally flooded intermittent stream surrounded by persistent emergent wetlands located adjacent to PG&E’s Humboldt Bay Power Plant. The slough is indirectly connected to Humboldt Bay through a tide gate installed between Buhne Slough and Fisherman’s Channel. Buhne Slough is located adjacent to the project construction areas at the western end of the project area near Humboldt Bay Substation.

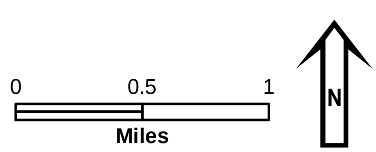
Lower Elk River, Martin Slough, and Unnamed Tributaries

Elk River is an approximately 15-mile-long stream with headwaters in the forested highlands southeast of Eureka. Martin Slough and its tributaries drain the southern side of the City of Eureka and valleys south into Swain Slough. From there, water flows west into the Lower Elk River, then north into Humboldt Bay. In addition to its listing as a sediment-impaired waterbody, the Lower Elk River, Martin Slough, and unnamed tributaries are included on the 303(d) list for indicator bacteria (E. coli) (SWRCB 2017). The project alignment crosses the Elk River approximately 1.2 miles eastward along the alignment from Humboldt Bay Substation, and crosses Martin Slough at three locations — approximately 2.4 miles, 4.75 miles, and 5.1 miles eastward along the alignment from Humboldt Bay Substation.



Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)

Figure 3.9-1
Existing Surface Waters and Floodplains
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project



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Ryan Slough, Ryan Creek, and Unnamed Tributaries

Ryan Slough is perennial stream that empties into Freshwater Creek. Its tributaries include Ryan Creek, which drains northeast to Ryan Slough. Ryan Creek originates in the hills south of Eureka and is fed by a number of unnamed tributaries with headwaters originating in the City of Eureka. This creek system is included on the 303(d) list as a sediment-impaired waterbody (SWRCB 2017). The project alignment crosses Ryan Slough east of the Redwood Acres Fairgrounds in northeast Eureka, approximately 0.45 mile westward along the alignment from Humboldt Substation at the eastern terminus of the project.

3.9.3.4 Groundwater

The project is located within the Eureka Plain Groundwater Basin, a shallow coastal aquifer located within the greater California Coastal Basin Aquifer. The primary water-bearing formations in the project area include the Hookton formation, Holocene dune sand west of Humboldt Bay, and alluvial deposits southeast of Arcata Bay and along the Elk River. Alluvial aquifers are composed of sand and gravel or finer-grained sediments, with groundwater stored within the pore spaces between sediment particles. Groundwater recharge is by direct precipitation and seepage from rivers and creeks. Although the quality of the groundwater is generally acceptable for some uses, seawater intrusion, nitrates, and bacterial levels make groundwater unsuitable for most domestic or municipal uses. Groundwater production tends to decline during the late summer and fall, and sanding of wells is a problem.

Owing to its unsuitability for domestic use, the Eureka Plain Groundwater Basin has not been well studied. Groundwater depths in unconfined portions of the alluvium occurs at less than 10 feet (Department of Water Resources 2004). It is likely that groundwater levels vary across the project area depending on the proximity to the bay and surface waters. In areas where the project is near Humboldt Bay, groundwater would typically be closer to the surface and may experience seawater intrusion. These areas include the southwestern extent of the project alignment near Humboldt Bay Substation and where it crosses the Elk River floodplain. Groundwater levels may also be elevated near sloughs, including where the existing power line crosses Ryan Slough and Martin Slough.

Groundwater levels in low elevations along Humboldt Bay are expected to rise as sea levels rise (Laird 2018).

3.9.3.5 Flood Potential

The existing project power line crosses coastal wetlands and several surface water features, each of which has an associated flood plain (see Figure 3.9-1: Existing Surface Waters and Floodplains). Portions of the project alignment, including approximately 38 existing pole structures, are located within mapped FEMA 100-year flood zones (Humboldt County 2015).

Coastal areas of Humboldt County experience regular flooding, with sometimes significant damage. Of the 29 hazard events to occur in the county since 1954, for which presidential disaster declarations were issued, 11 involved floods. The Freshwater Creek watershed basin is one of the principal sources of riverine flooding in Humboldt County, and flooding in the Elk River watershed basin occurs as a result of sedimentation. Coastal flooding occurs when winter storm surges along the Pacific coast cause high tides, large waves, and storm swells. Although the sheltered configuration of Humboldt Bay generally protects areas inland from direct exposure to storm surges, the area around King Salmon is only a few inches higher than the normal maximum high tide, and flooding can occur in this area during unusually high tides accompanied by storm surges.

Coastal flooding in Humboldt Bay is projected to increase with rising sea levels. Humboldt Bay has the highest sea level rise on the U.S. West Coast. Estimates of the rate of sea level rise in the Bay by 2030 range from a conservative estimate of 6 inches (Laird 2012) to a high estimate of 1 foot (Laird 2018). Low-lying areas, including a portion of the project area, will become more vulnerable to flooding caused by tides, rising groundwater, and impeded river runoff. Humboldt Substation is located on diked former tidelands that have been identified as vulnerable and at risk of inundation from mean monthly maximum water tides if the dikes are breached or overtopped.

On average, Humboldt County experiences one episode of minor river flooding every winter. Winter floods inundate most of the county’s 100-year flood zones every 3 to 10 years, and large, damaging storms occur every decade.

3.9.3.6 Tsunami

Approximately 3 miles of the existing power line are located within a tsunami inundation area that extends inland from Humboldt and Arcata bays along wetlands and surface water features. Approximately four structures along the existing alignment are within the currently mapped tsunami inundation zone. As sea levels rise and bay water extend inland, additional low-lying structures could become vulnerable to tsunamis.

Tsunamis are long, high sea waves generally caused by offshore earthquakes. Tsunami waves can travel up to 600 miles per hour away from the originating event. As the tsunami wave enters shallower waters near coastlines, its speed slows and its height increases greatly. The turbulent wave surge can cause current strong enough to float cars and carry boats and debris inland, undermining roads, buildings, and other structures. Then, as the surge waters recede, they carry debris with them, which collides with still-standing structures, causing further destruction.

Humboldt County has been affected by both local and distant tsunamis caused by earthquakes as close as the Mendocino coastline to as far away as Japan and Chile. Generally, four or five tsunamis occur every year in the Pacific Basin. Because of Humboldt Bay’s protective configuration, the effect of tsunamis on the project area has generally been minor. However, rising sea levels will reduce the level of protection afforded by Humboldt Bay. The state’s largest tsunami is expected to originate on the Cascadia subduction zone, which stretches off the North American coast from Vancouver Island to Northern California and is projected to have a high chance of producing a major earthquake within the next 50 years.

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 Water Quality (WQ)-1: Development and Implementation of a SWPPP.*** Following project approval, PG&E will prepare and implement a SWPPP to minimize construction impacts on surface water and groundwater quality. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (e.g., surface topography, etc.) The SWPPP will include procedures and standards to stabilize graded areas, reduce erosion, avoid release of hazardous materials and sediment to surface waters, and manage dewatering effluents. The SWPPP will identify BMPs and erosion and sediment control measures, such as straw wattles, water bars, covers, silt fences, storm drain inlet protection, mud trackout controls, and sensitive area access restrictions (e.g., flagging) that will be installed before the onset of winter rains or anticipated storm events to minimize impacts on surface water and groundwater.
>
> Mulching, seeding, or other suitable stabilization measures will be used to protect exposed areas during construction activities, as necessary. Identified erosion and control measures will be installed prior to the start of construction activities and will be inspected and improved as needed as required by the Construction General Permit and stated in the SWPPP. The SWPPP will specify that temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry standard stockpile management techniques. Where construction activities occur near a surface water body or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner that minimizes the risk of sediment transport to the drainage. The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary.
>
> A copy of the SWPPP will be provided to the CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the Construction General Permit.
>
> ***APM WQ-2: Worker Environmental Awareness Training (WEAP) Development and Implementation.*** Worker environmental awareness training will communicate environmental issues and appropriate work practices specific to the project. The WEAP will include applicable portions of the SWPPP, including spill prevention and response measures, groundwater handling measures, and proper BMP implementation. The

training will emphasize safe handling of hazardous materials, site-specific physical conditions to improve hazard prevention (e.g., identification of flow paths to the nearest water bodies), and a review of all site-specific water quality requirements.

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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

a) Would the project violate any water quality standards or waste discharge requirements? *Less-than-Significant Impact*

Potential construction-related impacts on water quality include the following:

- Increased erosion caused by contouring, grading, or vegetation removal to establish work areas and access roads may lead to increased sedimentation in nearby waters.
- Installation of foundations for TSPs and LSTs that require excavation in wetlands and areas of shallow groundwater adjacent to sloughs and within floodplains may excavate water-saturated soils.
- Small streams and wetlands will be crossed to access the project work area, and increased use of off-road vehicles and earth-moving machinery may result in erosion of access roads and subsequent sedimentation.
- Untreated water from construction dewatering operations from foundation excavations may contain sediment or pollutants that, if discharged to a storm drainage system or natural water course, could cause the water quality standards of the receiving water to be violated.
- Pouring concrete for pole and tower foundations will occur in wetlands and near waters, with potential for release of hazardous materials into surface waters.

- Potential release of fuels or other construction equipment-related hazardous materials near waters.

Surface water features within the project area include Buhne Slough, Lower Elk River, Martine Slough, Ryan Creek, Ryan Slough, unnamed tributaries, coastal wetlands, seasonal swales and wetlands, drainage ditches, and roadside ditches.

PG&E will implement the following APMs to avoid or minimize construction-related impacts on water quality to further reduce less than significant impacts to water quality. APM WQ-1 requires PG&E to assess the risk to water quality based on site-specific soil characteristics, slope, and the construction schedule, and develop a SWPPP that addresses potential water quality concerns. The SWPPP will specify measures for each activity that has the potential to degrade surrounding water quality through erosion, sediment runoff, dewatering, and the accidental release of pollutants. These measures, which will be implemented and monitored throughout the project, will ensure that water quality is not degraded by the project and that wastewater is discharged as required by state law and project permits.

Construction activities will include heavy equipment that uses petroleum products, hydraulic oil, and other chemicals. Accidental releases of hazardous materials that are used during construction, such as diesel fuel, hydraulic fluid, or oils and grease, may occur. Potential impacts to stormwater runoff from the use of these materials will be minimized through containment of any release before it can impact stormwater, as specified in the SWPPP. This potential impact is further discussed in Section 3.8, Hazards and Hazardous Materials.

PG&E will implement APM WQ-2 to ensure that workers are trained on implementing the erosion control measures identified in the SWPPP. APM BIO-2, General Resource Protection Measures, such as the minimization of grading and vegetation removal along work areas and access roads to the extent feasible, will further reduce the potential for erosion and sedimentation as a result of project activities. Other general measures in APM BIO-2 that will protect water quality include:

- Maintenance and Refueling, requires construction equipment to be maintained to avoid leaks of automotive fluids such as fuels, solvents, or oils and specifies that all refueling and maintenance of vehicles and other construction equipment are restricted to designated areas equipped with spill prevention and cleanup equipment that are situated at least 100 feet from any down gradient aquatic habitat unless otherwise isolated.

- Hazardous Material Spills, requires that emergency spill response and cleanup kits be readily available for immediate containment and cleanup of an accidental spill and that construction crews are trained in the safe handling of hazardous materials and cleanup responsibilities.

With successful implementation of these APMs, potential construction-related impacts that could result in violation of water quality standards or waste discharge requirements will be less than significant.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level? *Less-than-Significant Impact*

The project is not located near any groundwater wells that are used for drinking. If a freshwater aquifer exists along the project alignment, it does not supply water for local use. The project will require water for dust control, for the construction of footings and foundations, and for other purposes during construction. A water truck, typically with a capacity of 4,000 gallons, will be available to support project construction activities and dust suppression. This minor amount of water will be obtained from a municipal source along the project alignment, or a nearby PG&E facility. The volume of water required for project construction is far less than that of a single U.S. household, which uses between 29,000 and 36,500 gallons per year on average (USGS 2016). Therefore, the project will have no impact on groundwater supplies.

Due to the shallow depth to groundwater in portions of the project area, groundwater is expected to be encountered during the installation of footings, foundations, and replacement poles. When encountered, groundwater will be pumped and disposed of in compliance with any state and federal law requirements. Dewatering for the holes would only be needed during pole installation, which would be limited to a few days at each pole or tower site. Any minor effect on groundwater levels would be limited to within a few feet of the pole site and would be expected to rebound at each site within a few days, and there would be no net deficit in aquifer volume or lowering of the local groundwater table. Given the small volume of each of the holes that will be excavated for footings, foundations, and pole replacements, and the limited duration of dewatering, the short-term and localized dewatering of groundwater would result in less-than-significant impacts.

Accordingly, construction of the project will not substantially deplete groundwater supplies nor interfere substantially with groundwater recharge such that there will be a net deficit in aquifer volume or a lowering of the local groundwater table level, therefore impacts will be less than significant.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or sedimentation on- or off-site? *Less-than-Significant Impact*

The project will not permanently alter the existing drainage patterns in the project area, nor will it alter the course of a stream or river. The project will not create a net increase in impervious surfaces that could alter the direction of surface water runoff flows.

Establishing staging areas, laydown areas, helicopter landing zones, work areas, and pull sites will involve surface-disturbing activities that may temporarily alter existing drainage patterns in the project footprint. PG&E will implement BMPs contained in the SWPPP per APM WQ-1, including stabilization of disturbed areas, which will minimize or avoid erosion and sedimentation on- and off-site. Temporary, short-term impacts from project construction will be less than significant. Implementation of APM WQ-1 will further reduce the less-than-significant project 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*

The project will not permanently alter the existing drainage patterns in the project area and will not permanently alter the course of a stream or river. Further, the project will not create new additional impervious surfaces that could result in flooding on- or off-site.

As stated above under criterion (c), establishing staging areas, laydown areas, helicopter landing zones, work areas, and pull sites will involve surface-disturbing activities that could temporarily alter existing drainage patterns in the project footprint. Temporary, short-term impacts will be less than significant. PG&E will implement BMPs contained in the SWPPP per APM WQ-1, including stabilization of disturbed areas. Stormwater flowing on and off work areas will be managed in accordance with the project SWPPP, which will minimize the potential for flooding from work areas during construction. The impact will be less than significant.

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*

Portions of the project alignment are located within rural or undeveloped areas where municipal or otherwise developed stormwater collection systems are not established. Areas of the project alignment that are located within a built environment generally have a stormwater system in place. The project will not increase the number of impervious surfaces, nor will it substantially modify the grade within the project area such that rate of runoff increases. Implementation of APM WQ-1 will further minimize the rate and volume of runoff water during construction. Therefore, the project will not create or contribute additional runoff that could exceed the capacity of existing stormwater systems.

Any potential for sediment-laden runoff or the accidental discharge of hazardous materials from the project will be minimized through implementation of the project SWPPP, as described in APM WQ-1. Therefore, the impact will be less than significant.

f) Would the project otherwise substantially degrade water quality? *No Impact*

No additional impacts to 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*

Approximately 38 existing pole locations and associated existing access roads and temporary work areas are located within 100-year flood hazard zones. The project will consist of replacing existing poles with new poles and installing four lattice steel towers, but the size of the foundations will not impede or redirect flood flows. Temporary work areas and access roads will be restored after project completion and drainage patterns will not be substantially different from pre-project conditions. Therefore, no impact will occur.

i) Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam? *Less-than-Significant Impact*

The project area is not located in a dam failure inundation hazard area (Humboldt County 2012). The project will not affect existing levees, dams, or other flood control mechanisms, nor will it affect the potential for significant risk of loss, injury, or death resulting from flooding. The project will not include work that could jeopardize the function or safety of existing dams, levees, or other flood control devices.

Electric transmission towers in low-lying areas along the bay and by sloughs are unlikely to be destabilized by tidal inundation and rising groundwater caused by rising sea levels. With implementation of sea-level rise resilience measures into the final engineering design—including measures such as increasing the depth of foundation piers and use of corrosion coatings—and routine inspection and maintenance, the project will not expose people or structures to a significant risk of loss, injury, or death involving flooding and the impact will be less than significant. The replacement lattice steel towers will be more robust than the existing wood structures and will be more resistant to water damage.

j) Would the project cause inundation by seiche, tsunami, or mudflow? *No Impact*

The existing power line is located in a mapped tsunami inundation zone; however, replacement of the structures and conductor will not increase the susceptibility of the project area to risk of inundation resulting tsunami. The project area is not at risk from seiche or mudflow. Therefore, no impact will occur.

3.9.5 References

City of Eureka. 2006. *Humboldt Bay Municipal Water District Groundwater Management Plan*. Online: https://www.hbmwd.com/files/bd94a9e95/UWMP-2015+June+9%2C+2016+%28Final%29.pdf. Site visited September 24, 2018.

______. 2008. *Construction Site Erosion Control Ordinance*. Available at: http://www.ci.eureka.ca.gov/civicax/filebank/blobdload.aspx?blobid=4769. Accessed: September 24, 2018.

______. 2015. *Humboldt Bay Municipal Water District Urban Water Management Plan*. Online: https://www.hbmwd.com/files/bd94a9e95/UWMP-015+June+9%2C+2016+%28Final%29.pdf. Site visited September 24, 2018.

Department of Water Resources, 2004. *Eureka Plain Groundwater Basin*. Available at: https://water.ca.gov/LegacyFiles/pubs/groundwater/bulletin_118/basindescriptions/1-9.pdf. Accessed: August 15, 2018.

Humboldt County. 2002. *General Plan Update Background Reports: Water Resources*. Available at: http://humboldtgov.org/DocumentCenter/Home/View/1366. Accessed: September 11, 2017.

______. 2012. *Figure 14-2. Summary Constraints in Coastal Zone*. Available at: http://humboldtgov.org/DocumentCenter/Home/View/1427. Accessed: September 11, 2017.

_____. 2014. *Humboldt Operational Area Hazard Management Plan, February 2014 Update*. Available at: https://humboldtgov.org/506/Local-Hazard-Mitigation. Accessed: August 16, 2018.

______. 2015. *Central Humboldt Flood Zones and Fire Hazards*. April 1, 2015. Available at: http://humboldtgov.org/documentcenter/view/1749. Accessed: November 28, 2017.

______. 2017. *Humboldt County General Plan Update. Revised Draft Environmental Impact Report*. April 19, 2017. Available at: http://humboldtgov.org/DocumentCenter/Home/View/61330. Accessed: September 11, 2017.

______. 2018. *Title III, Land Use and Development, Division 3, Building Regulations, Section 331-12, Grading Excavation, Erosion, and Sedimentation Control.* Available at: https://humboldtgov.org/DocumentCenter/View/211/Grading-Excavation-and-Erosion-and-Sediment-Control-Ordinance-PDF. Accessed: September 24, 2018.

______. 2014. *Humboldt Operational Area Hazard Management Plan, February 2014 Update*. Available at: https://humboldtgov.org/506/Local-Hazard-Mitigation. Accessed: August 16, 2018.

_____. 2018. *Humboldt County, Humboldt Bay Area Plan, Sea Level Rise Vulnerability Assessment*. Prepared for Humboldt County. Available at: https://humboldtgov.org/DocumentCenter/View/62872/Humboldt-Bay-Area-Plan-Sea-Level-Rise-Vulnerability-Assessment-Report-PDF?bidId=. Accessed: September 12, 2018.

Laird, Aldaron. 2012. *Humboldt Bay Shoreline Inventory, Mapping and Sea Level Rise Vulnerability Assessment*. Prepared for the State Coastal Conservancy, Oakland, California. Available at: http://humboldtbay.org/sites/humboldtbay.org/files/Humboldt%20Bay%20-%20Mapping%20and%20SLR%20Vulnerability%20Assessment-A.Laird.pdf. Accessed: September 12, 2018.

North Coast Regional Water Quality Control Board (North Coast Water Board). 2008. *Staff Work Plan to Control Excess Sediment in Sediment-Impaired Watersheds*. April 8, 2008. Available at: http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/sediment_workplan/. Accessed: November 28, 2017.

_____ . 2018. *Water Quality Control Plan for the North Coast Region, June 2018*. Online: https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/180710/BasinPlan20180620.pdf. Site visited September 24, 2018.

National Oceanic and Atmospheric Administration (NOAA). 2017. *Climate of Eureka, California*. Online: http://www.wrh.noaa.gov/eka/climate/summary.php. Accessed: September 11, 2017.

State Water Resources Control Board. 2017. *2014 and 2016 California Integrated Report Clean Water Act Sections 303(d) and 305(b)*. Staff Report, October 3, 2017. Online: https://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/final_staff_report.pdf. Accessed: August 15, 2018.

United States Geological Survey (USGS). 2016. *Water Questions & Answers, How much water does the average person use at home per day?* Available at: https://water.usgs.gov/edu/qa-home-percapita.html. Accessed: September 24, 2018.

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, including an analysis of project compatibility with land use and/or habitat plans. The analysis in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in Table 3.10-1 below 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

Coastal Zone Management Act

The authority to evaluate projects conducted, funded, or permitted by the federal government is granted to coastal states through the federal Coastal Zone Management Act of 1972, United States Code Sections 3501 et seq., as amended in 1990 under the Coastal Zone Act Reauthorization Amendments. The Coastal Zone Management Act requires that federal actions be consistent to the maximum extent practicable with federally approved state coastal plans. The project will require a Clean Water Act Section 404 authorization (i.e., a federal action) from the United States Army Corps of Engineers (USACE) because of work within federal jurisdictional areas, which may trigger the need for a consistency determination from the California Coastal Commission (CCC).

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.

California Coastal Act

Under the California Coastal Act of 1976 (CCA), the CCC, in partnership with coastal cities and counties, plans and regulates "development" within the coastal zone (see Sections 3.1 Aesthetics and 3.3 Biology for more information about the CCA.) "Development" is broadly defined under the CCA to include: construction activities such as the placement or erection of any solid material or structure; discharge or disposal of any dredged material or waste; grading, removing, dredging, mining, or extraction of any materials; or change in the density or intensity of use of land within the coastal zone (CCA Section 30106).

Section 30610(d) of the CCA provides an exemption for projects that involve the repair and maintenance of existing electric transmission facilities. The Coastal Act states:

Repair or maintenance activities that do not result in an addition to, or enlargement or expansion of, the object of those repair or maintenance activities; provided, however, that if the commission determines that certain extraordinary methods of repair and maintenance involve a risk of substantial adverse environmental impact, it shall, by regulation, require that a permit be obtained pursuant to this chapter. (CA Public Resources Code Sec. 30610(d).

In addition, the Coastal Commission established a 'de minimus waiver' for repair and maintenance projects in an environmentally sensitive habitat area that do not cause a significant impact on coastal resources:

(e) In any particular case . . . the executive director [of the Coastal Commission] may, where he or she finds the impact of the development on coastal resources or coastal access to be insignificant, waive the requirement of a permit; provided however, that any such waiver shall not be effective until it is reported to the commission at its next regularly scheduled meeting. If any three (3) commissioners object to the waiver, the proposed repair and maintenance shall not be undertaken without a permit. 14 CCR 13252(e).

Under the CCA, authority to issue coastal development permits (CDPs) in the coastal zone is delegated to local permitting agencies (such as cities and counties) when the CCC has certified a Local Coastal Program (LCP) in a particular area. Locally approved CDPs are appealable to the CCC under certain circumstances. LCPs guide the implementation of conservation, development, and regulatory policies within the local coastal zone, as required by the CCA. Projects that are within both an LCP and CCC-exclusive jurisdiction may be consolidated at the local authority's request and CCC's approval, and reviewed entirely by the CCC.

Approximately half of the project alignment is located either within the CCC's retained original permit jurisdiction or within the Humboldt Bay Area Plan area of the Humboldt County LCP promulgated by Humboldt County, as described below in Section 3.10.3.3 Coastal Plans and Policies. Humboldt County has issued a consolidation request to have the CCC review the entire project under the CCA. If the project is consolidated as anticipated, the entire project will be reviewed by the CCC, and not Humboldt County, to ensure compliance with CCA coastal permitting requirements.

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. Local regulation of land use and planning is codified in the Humboldt County General Plan and Humboldt County Code Zoning Regulations within the Humboldt County Code. In addition, the City of Eureka has codified its local regulations in the City of Eureka General Plan and the City of Eureka California Municipal Code. Although PG&E is not subject to local discretionary permitting, ministerial permits will be secured for the project, as required. Table 2-10-1: Potential Permits and Approvals (in Chapter 2.0, Project Description) lists the authorizations that may be required for project construction.

3.10.2.2 Methodology

Analysis of land use and planning included a review of the following plans and policies:

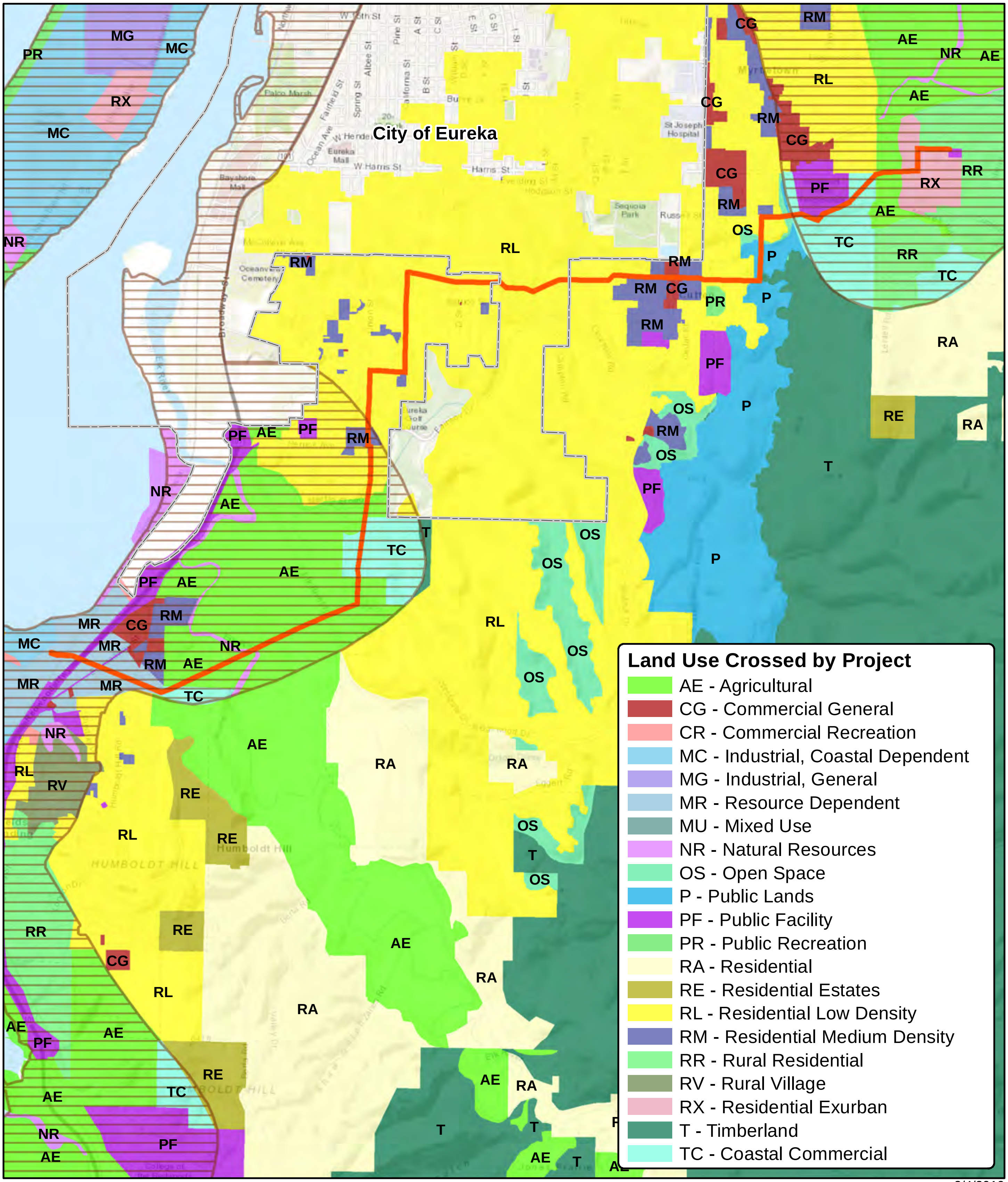
- Humboldt Bay Area Plan of the Humboldt County LCP;
- Humboldt County General Plan;
- Humboldt County Code;
- City of Eureka 2040 General Plan (amended May 2018);
- City of Eureka Municipal Code;
- Murray Field ALUCP; and
- Green Diamond Resource Company's Northern Spotted Owl Habitat Conservation Plan.

In addition, a field visit to the site was conducted to gather and verify relevant information pertaining to the land uses along the power line route.

3.10.3 Environmental Setting

3.10.3.1 Regional Setting

The area is characterized by gently to steeply sloping topography and flat valleys supporting a variety of land uses, including agriculture (ranching, livestock grazing, nurseries, and row crops), timberlands, residential, industrial, and commercial uses (Figure 3.10-1: Land Use Designations). The major transportation corridor through the area is Highway 101.



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 3_10-1 Land Use Designations.mxd

2/4/2019

Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)

City of Eureka

Coastal Zone

FIGURE 3.10-1

Land Use Designations

Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

-Humboldt County General Plan Land Use version 3.0. August 14, 2018, Data Accessed September 20, 2018 from https://humboldtgov.org/276/GIS-Data-Download
-City of Eureka Adopted Land Use. Data Accessed September 21, 2018 from http://gis.ci.eureka.ca.gov/datadownload.html

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Results you can rely on

Approximately 4 of the 7.8 miles of the project alignment are located within the coastal zone between Humboldt Bay Substation and two spans north of Herrick Avenue (a distance of approximately 2.9 miles), and between Humboldt Substation and the west side of Redwood Acres Fairgrounds (a distance of approximately 1.1 miles).

3.10.3.2 Local Land Use Setting (Existing Land Use)

Land uses include open space, agriculture, timberland, rural residential, residential, commercial, and public land uses, including schools, parks and other recreational facilities. A power line corridor extends eastward from Humboldt Bay Substation and Humboldt Bay Generating Station (HBGS) within which a total of five power lines are located in parallel for approximately 1.5 miles. Agricultural and timberland uses are located within the coastal zone, at both the western and eastern ends of the project, where the alignment crosses the Elk River Valley, Martin Slough, and Ryan Slough (see Figure 3.2-1: Agricultural Farmland). The central portion of the project is predominantly residential, both within Humboldt County and the City of Eureka. Recreational land uses are concentrated at the western end of the project, within Humboldt County, while schools, churches, and community centers are found at various locations throughout the project area (see Figure 3.12-1: Non-residential Sensitive Receptors within 0.25 Mile of the Project Area, Figure 3.15-1: Parks and Recreational Facilities within 300 Feet of the Project Alignment). There are no Designated Scenic Highways in the project area. The project crosses Highway 101, which is an eligible State Scenic Highway that has not been formally designated. Scenic and visual qualities of coastal areas within the coastal zone are considered and protected as a resource of public importance under California's Coastal Act (see Aesthetics Chapter, Section 3.1.2).

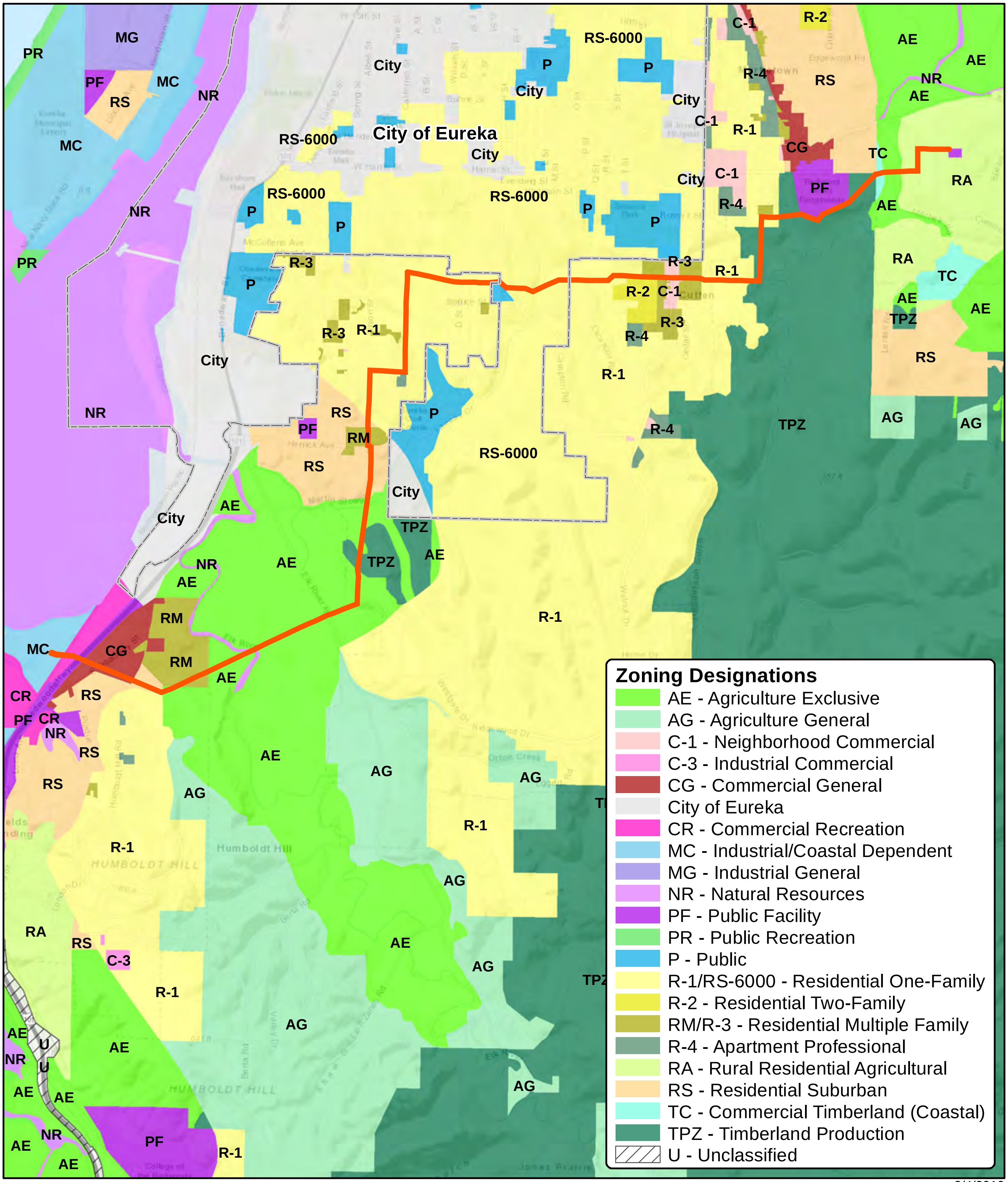
Zoning and General Plan Land Use Designations

The project area is located within Humboldt County and the City of Eureka. Figure 3.10-1: Land Use Designations illustrates the general plan land use designations in the project area, and Figure 3.10-2: Zoning Designations illustrates the zoning designations in the project area. Local plans and ordinances, including the Humboldt County General Plan, Eureka General Plan and corresponding zoning regulations, do not apply to projects, such as this one, that are under the exclusive jurisdiction of the CPUC. However, general policies related to electric transmission facilities have been included here for purposes of CEQA review.

The City of Eureka Municipal Code provides that electric transmission lines within local jurisdiction may be constructed in any district.

3.10.3.3 Local Plans and Policies

As previously stated, the project is not subject to local agency regulations. However, the project is within the boundary of the existing Humboldt Bay Area LCP, which is promulgated under state law. PG&E has considered the following local plans and policies in its design of the project. The project's consistency with particular policies within these documents is discussed in Section 3.10.4.3, Potential Impacts, below.



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 3_10-2 Zoning Designations.mxd

2/4/2019

Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)

City of Eureka

FIGURE 3.10-2

Zoning Designations

Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

-Humboldt County Zoning, version 4.1. August 14, 2018, Data Accessed September 21, 2018 from https://humboldtgov.org/276/GIS-Data-Download
-City of Eureka Current, Adopted Zoning Layer. Data Accessed September 24, 2018 from http://gis.ci.eureka.ca.gov/datadownload.html

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Humboldt County General Plan Update

The Humboldt County General Plan for the Areas Outside the coastal zone (Humboldt County 2017) was part of a comprehensive update of the 1984 Humboldt County General Plan. The General Plan Update expresses the community's goals for the distribution of both public and private future land uses for approximately the next 24 years until 2040 and establishes policies, standards, and implementation measures for future development. The General Plan Update's Energy Element includes goals related to the siting and routing of electrical transmission lines and recommends placing lines within local jurisdiction so that infrastructure is not located on or near habitat, recreational, or archaeological resources and that visual impacts are minimized. The Energy Element also notes that new major steel tower electrical transmission facilities should be consolidated with existing electrical steel tower transmission facilities unless there are social, aesthetic, or significant economic concerns.

Humboldt County Code

The Humboldt County Code, Zoning Regulations, Title III Land Use and Development addresses electric transmission lines and quasi-public structures and uses within local jurisdiction (Humboldt County 2000).

Section 313-73.1, Electrical Transmission Lines, Major includes regulations to ensure that major electrical transmission and distribution facilities within local jurisdiction are located, designed, and constructed in a manner that is least environmentally damaging to natural resources and minimizes degradation of coastal scenic resources.

Section 314-85.1, Quasi-Public Structures and Uses, states that both overhead and underground transmission and distribution lines within local jurisdiction shall be permitted in any zone without limitation as to height and without the need for first obtaining a Use Permit.

City of Eureka 2040 General Plan

The City of Eureka's 2040 General Plan formalizes a long-term vision for the physical evolution of Eureka and outlines policies, standards, and programs to guide day-to-day decisions concerning Eureka's development (City of Eureka 2018). The Plan's Public Facilities and Services Element states that its goal is to ensure the effective and efficient provision of public facilities and services for existing and new development and notes an associated policy that the City shall provide high-quality public facilities, utilities, and services throughout the urbanized area of Eureka and shall ensure that such facilities, utilities, and services within its jurisdiction are compatible with surrounding development.

City of Eureka Municipal Code

Title XV, Land Use, of the Municipal Code provides that electric transmission lines within local jurisdiction may be constructed in any district (Section 155.299, Electric Transmission Lines) (City of Eureka 2011).

Humboldt County Land Use Compatibility Plan

The County-owned Murray Field Airport on Arcata Bay is approximately 1.2 miles north of the existing power line; however, the project area is located outside the planning area of the

Humboldt County Airport Land Use Compatibility Plan (ALUCP). PG&E’s utility projects are not subject to local airport land use plans.

Habitat Conservation Plans and Natural Community Conservation Plans

Section 10 of the Federal Endangered Species Act allows for the creation of Habitat Conservation Plans (HCPs) to protect listed and candidate species in connection with the issuance of an Incidental Take Permit for federally listed species. The eastern portion of the existing power line (approximately between pole sites 86 and 104) crosses through the Green Diamond Resource Company’s Northern Spotted Owl Habitat Conservation Plan area (GDRC 2018). PG&E is not a participant in this HCP.

3.10.3.4 Coastal Plans and Policies

California Coastal Act

As described above in the Regulatory Section, the CCA regulates the project and contains exemptions and a potential waiver for the maintenance of existing electric transmission facilities, depending upon the level of impacts associated with the project. For a maintenance project to be eligible for a waiver, it must not cause a significant impact to coastal resources or coastal access. P&GE will either obtain a waiver or a Coastal Development Permit (CDP) from the CCC for the proposed work in the Coastal Zone.

Humboldt County LCP

Humboldt Bay Area Plan of the Humboldt County LCP

Humboldt County adopted a multi-plan LCP, including the Humboldt Bay Area Plan which covers portions of the project area, pursuant to the CCA. The Humboldt Bay Area Plan LCP identifies requirements for development within the Coastal Zone to satisfy the policies and requirements for coastal land use contained in the CCA (Public Resource, Code 30000 et seq.) and other related legislation (Humboldt County 2014). The Humboldt Bay Area Plan includes a range of development and resource policies intended to, among other goals, protect biological and cultural resources, provide public access to the coast and coastal recreational lands, keep agricultural land in production and protect agricultural soils, protect the marine environment, ensure public safety, and maintain visual resources. The Humboldt Bay Area Plan also has policies related to construction of new electric facilities, although it does not contain policies related to maintaining existing lines within existing electric transmission line corridors. It does specify that new facilities should use existing transmission line corridors unless there are social, aesthetic, or significant economic concerns. This project involves maintenance of an existing line within an existing electric transmission line corridor and not construction of a new electric transmission facility. As stated previously, Humboldt County has issued a consolidation request to have the CCC review the entire project under the CCA.

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 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 Proponent's Environmental Assessment (PEA), including Section 3.1, Aesthetics; Section 3.3, Air Quality; Section 3.8 Hazards and Hazardous Materials; Section 3.12, Noise; Section 3.15, Recreation; and Section 3.16, Transportation and Traffic.

As described in Chapter 2.0, Project Description, the proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

a) Would the project physically divide an established community? *No Impact*

Implementation of the project will not physically divide an established community. The project is located within an existing power line corridor and use of construction work areas will be temporary. No impact will occur.

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*

The project includes reconstruction of an existing power line within PG&E's existing alignment. The reconductoring effort will follow the same alignment as the existing line, with the exception of a minor realignment within the existing utility easement for installation of four lattice steel towers. Any construction-related activities will be temporary and short term and will not result in changes in land use or zoning.

PG&E will comply with all CCA requirements for those portions of the project located within the Coastal Zone. Moreover, the project will be generally consistent with local land use plans and policies, even though they are not applicable to the project.

Accordingly, the project will not conflict with an applicable land use plan, policy, or regulation and no impact will occur.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan? *No Impact*

Portions of the project alignment traverse lands included in the Green Diamond Resource Company's Northern Spotted Owl HCP. The HCP, in combination with an Incidental Take Permit, allows for incidental take of the northern spotted owl by Green Diamond Resource Company in conjunction with otherwise lawful timber harvesting. PG&E project activities are not covered by this HCP nor will they conflict with the purpose of the HCP as the power line is located within a maintained, existing alignment. Construction activities will not conflict with any applicable HCP or natural community conservation plan; therefore, no impacts will occur.

3.10.5 REFERENCES

City of Eureka. 2008. City of Eureka General Plan. Amended August 2008. Available at: http://www.ci.eureka.ca.gov/depts/development_services/development_services_library/default.asp. Accessed: October 20, 2017.

City of Eureka. 2011. *Chapter 155: Zoning Regulations.* Available at: http://library.amlegal.com/nxt/gateway.dll/California/eureka/titlexvlandusage/chapter155zoningregulations?f=templates$fn=default.htm$3.0$vid=amlegal:eureka_ca$anc=JD_155.118. Accessed: August 14, 2018.

______. 2018. *City of Eureka 2040 General Plan.* Amended May 2018. Available at: http://eureka2040gpu.com/Links/pdfs/Eureka%20General%20Plan%20May2018%20Final%20(web).pdf. Accessed: September 6, 2018.

Green Diamond Resource Company. 2018. *Green Diamond Resource Company Forest Habitat Conservation Plan.* June 2018. Available at: https://www.fws.gov/arcata/es/HCP/2_Green%20Diamond%20FHCP/1a_GD_FHCP.pdf. Accessed: September 26, 2018.

Humboldt County. 1988. *Humboldt County General Plan*. Available at: http://www.humboldtgov.org/205/Plans. Accessed: October 20, 2017.

______. 2000. *Humboldt County Zoning Code*. Available at: https://humboldtgov.org/DocumentCenter/View/4029/Humboldt-County-Zoning-Regulations-PDF. Accessed: August 10, 2018.

______. 2014. *Humboldt County General Plan Volume II; Humboldt Bay Area Plan of the Humboldt County Local Coastal Program*. Amended December 2014. Available at: https://humboldtgov.org/DocumentCenter/View/50844/Humboldt-Bay-Area-Local-Coastal-Plan. Accessed: August 14, 2018.

________ 2017. *Humboldt 21st Century General Plan: Humboldt County General Plan for Areas Outside the Coastal Zone*. Adopted October 23, 2017. Available at: https://humboldtgov.org/DocumentCenter/View/61984/Humboldt-County-General-Plan-complete-document-PDF. Accessed: August 14, 2018.

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3.11 MINERAL RESOURCES

3.11.1 INTRODUCTION

This section describes the existing conditions and potential impacts on mineral resources as a result of construction. The analysis concludes that there will be no impacts 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: CEQA Checklist for Mineral Resources, and discussed in more detail in Section 3.11.4, Applicant Proposed Measures (APMs) and Potential Impacts.

Table 3.11-1: CEQA Checklist for Mineral Resources

Would the Project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

3.11.2 REGULATORY BACKGROUND AND METHODOLOGY

3.11.2.1 Regulatory Background

Federal

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

State

The 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 California Public Utilities Commission (CPUC) has exclusive jurisdiction over project siting, design, and construction, the project is not subject to local discretionary regulations. However, Pacific Gas and Electric Company (PG&E) has considered local plans and policies as part of the environmental review process. The Humboldt County General Plan and the City of Eureka General Plan do not designate any locally important mineral resources in the project area.

The City of Eureka General Plan (2018) does not contain any policies pertaining to mineral resources.

3.11.2.2 Methodology

Information on mineral resources was compiled from published literature and maps published in local land use planning documents. Mineral resource impacts that can result from project construction activities were evaluated qualitatively based on site conditions, expected construction practices, and materials, locations, and duration of project construction activities.

3.11.3 Environmental Setting

Humboldt County has significant mineral resources. Approximately 85 extraction sites around the County produce sand, gravel, metals, stone, and clay. Mining provides an input resource to many key activities in the construction industry, primarily the raw materials for concrete. Mined materials are also used for road construction, maintenance, and repair. Other important uses include fill materials, snow and ice control, railroad grade ballast, and filtration systems for on-site sewage disposal systems (Humboldt County 2017). The project area is not located near any of the identified mineral extraction sites.

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 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 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

As described in Chapter 2.0, Project Description, the proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

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.

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*

The project will not result in the loss of availability of a known mineral resource; the project alignment does not cross any known mineral resources or actively mined resources. Therefore, there will be no impact.

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*

The project is not located near any identified extraction sites, and thus construction of the project would not result in the loss of availability of a locally important mineral resource recovery site. Therefore, there will be no impact.

3.11.5 References

California Department of Conservation. 2017. SMARA Statutes and Associated Regulations Webpage. Available at: http://www.conservation.ca.gov/omr/lawsandregulations. Accessed: September 18, 2017.

City of Eureka. 2018. *City of Eureka 2040 General* Plan. *Public Hearing Draft.* Available at: http://www.ci.eureka.ca.gov/civicax/filebank/blobdload.aspx?BlobID=15201. Accessed: September 30, 2018.

Humboldt County. 2017. Humboldt County General Plan for Areas Outside the Coastal Zone. Adopted October 23, 2017. 457 pages. Accessed: September 28, 2018.

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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 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.

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} or 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.

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

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
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).

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 environmental noise; however, federal guidance documents exist that address environmental noise and regulations for specific noise sources. For example, the Federal Highway Administration (FHWA), Department of Transportation (DOT), Federal Railroad Administration (FRA), Federal Transit Administration (FTA), Federal Aviation Administration (FAA), and Federal Interagency Committee on Urban Noise (FICUN) all provide regulations and guidelines for noise impacts resulting from federal highways, aircraft usage, railroads, and other development, as described in the following paragraphs. While these standards are not directly applicable to utility construction projects, they provide some context for the impact analysis.

Federal Highway Administration

The FHWA noise abatement criteria establish absolute exterior noise levels for varying land use categories where an impact is triggered. The noise abatement criteria require maintenance of L_{eq} for noise levels emitted in lands classified categories "A" (lands for which serenity and quietness are significant) as 57 dBA, "B" (lands near sensitive receptors, defined as picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals) as 67 dBA, and "C" (developed lands, properties, or activities not included in categories "A" or "B") as 67 dBA.

Department of Transportation

The DOT aviation noise abatement policy provides an L_{dn} value of 65 dBA for areas with a designated noise exposure forecast of 30 or less (noise exposure of 30 or less is defined as having essentially no complaints expected from individuals or groups, but possible noise interference with community activities).

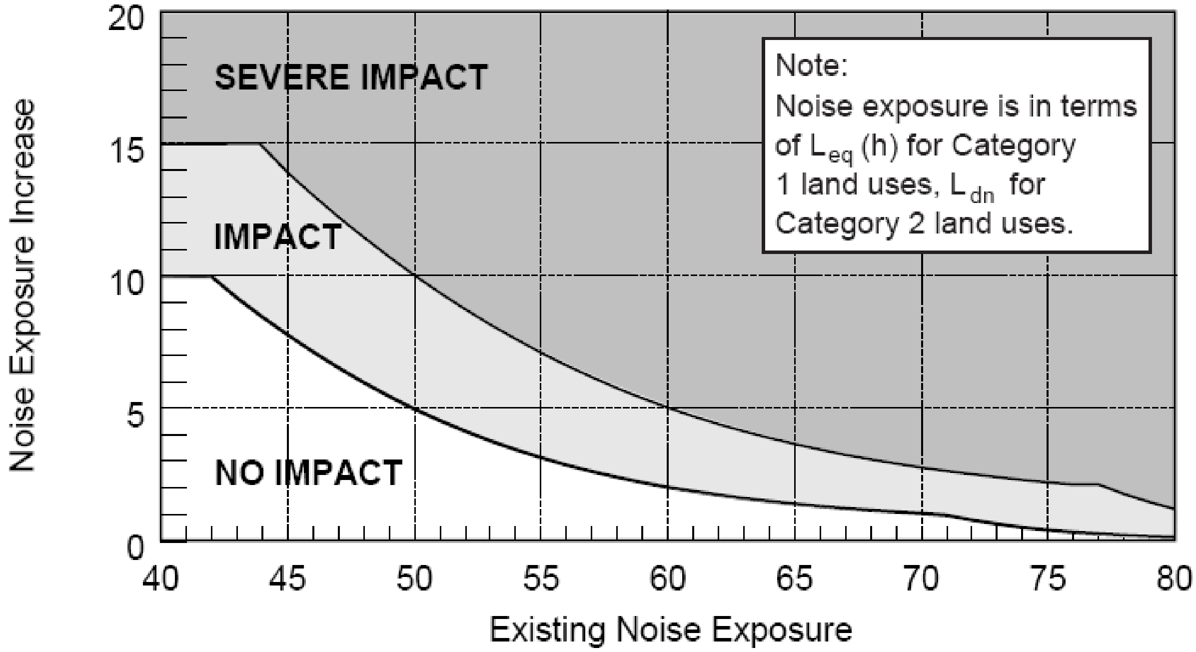
Federal Railroad Administration and Federal Transit Administration

While not applicable to utility construction projects, the FRA and FTA provide guidelines on allowable increases in cumulative noise levels, as shown in Figure 3.12-1: Federal Railroad Administration and FTA Allowable Increase in Cumulative Noise Level. The horizontal axis is the existing noise exposure and the vertical axis is the increase in the cumulative noise level due to a high-speed rail project. This figure suggests the increases in noise exposure that would be acceptable, conditionally acceptable, and unacceptable, based on existing conditions and the level of impact.

Federal Aviation Administration and Federal Interagency Committee on Urban Noise

Finally, the FAA and the FICUN have issued land-use compatibility guidelines indicating that a yearly L_{dn} of less than 65 dBA (59 dBA L_{eq}) is compatible with residential land uses and that, if a community determines it is necessary, levels up to 75 dBA (69 dBA L_{eq}) may be compatible with residential uses and transient lodgings that incorporate noise-reduction features (Title 14 California Federal Record [CFR] 150).

Figure 3.12-1: Federal Railroad Administration and FTA Allowable Increase in Cumulative Noise Level



Note: *Category 1 land uses are those tracts of land where serenity is essential (e.g., historic landmarks) and Category 2 land uses includes residence and buildings where people normally sleep.*

Source: DOT 2012

State

There are no existing state regulations limiting environmental noise.

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.

Humboldt County

The Humboldt County General Plan Noise Element provides short-term noise standards categorized by zoning. Standard N-S7, Short-Term Noise Performance Standards (L_{max}), states:

> "The following noise standards, unless otherwise specifically indicated, shall apply to all property within their assigned noise zones and such standards shall constitute the maximum permissible noise level within the respective zones.

Short-Term Noise Standards (L_{max})		
Zoning Designation	**Day (maximum) 6:00 a.m. to 10:00 p.m. dBA**	**Night (maximum) 10:00 p.m. to 6:00 a.m. dBA**
MG, MC, AE, TPZ, TC, AG, FP, FR, MH	80	70
CN, MB, ML, RRA, CG, CR, C-1, C-2, C-3	75	65
RM, R-3, R-4	65	60
RS, R-1, R-2, NR	65	60

Exceptions. The Short-Term Noise levels shown in the above table shall not apply to uses such as, but not limited to:

1. Portable generator use in areas served by public electricity when electrical service is interrupted during emergencies as determined by the Planning Director.
2. Temporary events in conformance with an approved Conditional Use Permit.
3. Use of chainsaws for cutting firewood and power equipment used for landscape maintenance when accessory to permitted on-site uses.
4. Heavy equipment and power tools used during construction of permitted structures when conforming to the terms of the approved permit.
5. Emergency vehicles.

Based on exception 4 in the table above, the local short-term noise performance standards do not apply to temporary construction noise.

City of Eureka

The City of Eureka General Plan and Municipal Code do not contain quantitative thresholds or limits related to noise generated from construction activities.

3.12.2.2 Methodology

Evaluation of potential noise impacts from the project included reviewing all local county, community, and city noise standards to determine local practices, and characterizing the existing noise environment. Temporary construction noise associated with helicopter usage and aggregate operation of heavy equipment was evaluated using standard acoustical models and general noise levels from guidance documents from the Federal Highway Administration (FHWA 2006), Federal Aviation Administration (FAA 2004) and the United States Environmental Protection Agency (USEPA 1971). The potential for noise related to operations and maintenance was also assessed.

3.12.3 ENVIRONMENTAL SETTING

The project is located within the City of Eureka and unincorporated parts of Humboldt County adjacent to Humboldt Bay in northern California. The area has a low population density and is surrounded by National Forest to the east and the Pacific Ocean to the west. Highway 101 is the only major highway that provides access to the City and is a major source of noise in the area. Other sources of noise in the area include airports, industry, weather and fixed noise sources.

The major sources of noise in Humboldt County include highway and roadway traffic, aircrafts near airports, railroad traffic along the Northwestern Pacific right-of-way, noise from industrial activities such as lumber mills, power plants (including facilities in Blue Lake, Fairhaven, and Scotia), and construction sites. Of these sources, only highway and roadway traffic-related sources are found near the project area. Traffic-related noise is generated from Highway 101, Hill Road, Humboldt Hill Road, Elk River Road, and arterial and neighborhood roads.

3.12.3.1 Sensitive Receptors

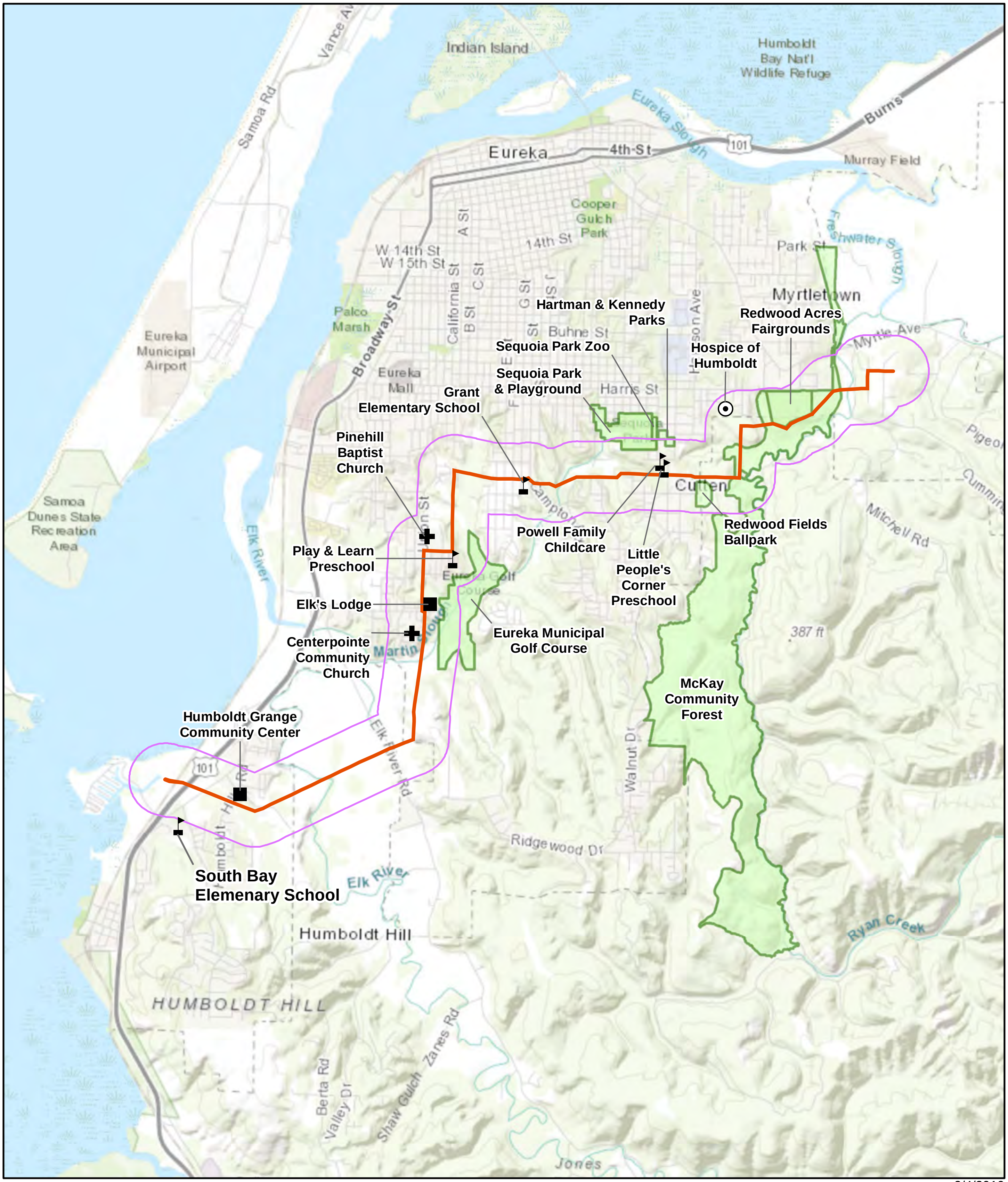
Noise-sensitive receptors generally are defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Typically, noise-sensitive land uses include residences, hospitals, places of worship, libraries, performance spaces, offices, and schools, as well as nature and wildlife preserves, recreational areas, and parks.

The nearest noise-sensitive receptors to the project area are residences, some of which are located as close as 10 feet from existing poles along the alignment. The nearest hospital is St. Joseph's Hospital, which is approximately 0.65 mile from the existing project alignment. Non-residential receptors are shown in Figure 3.12-2 and listed in Table 3.12-4: Non-Residential Sensitive Receptors within 0.25 Mile.

Table 3.12-4: Non-Residential Sensitive Receptors within 0.25 Mile

Sensitive Receptor	Approximate Distance from Alignment
Schools	
Grant Elementary School	0.01 mile
South Bay Elementary School	0.26 mile[1]
Little People's Corner Preschool	0.04 mile
Play & Learn Preschool	0.05 mile
Powell Family Childcare	0.08 mile
Recreation Facilities	
McKay Community Forest	crosses project alignment
Redwood Acres Fairgrounds	immediately adjacent
Sequoia Park	0.01 mile
Kennedy Park	0.20 mile
Hartman Park	0.25 mile
Redwood Fields Ballpark	0.04 mile
Eureka Municipal Golf Course	0.06 mile
Other Facilities	
Hospice of Humboldt	0.01 mile
Elk's Lodge	0.05 mile
Humboldt Grange Community Center	0.06 mile
Pinehill Baptist Church	0.08 mile
Centerpointe Community Church	0.08 mile

1. The South Bay Elementary School is located just outside 0.25 mile from the project alignment, but is included here as a sensitive receptor because of helicopter work that will take place in the area.



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 3_12-2 Non-residential Sensitive Receptors within 0_25 Mile of the Project Area.mxd

2/4/2019

Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)

0.25-mile Buffer of the Project Alignment

Sensitive Receptors

- Church
- School
- Healthcare
- Other
- Parks and Recreation Facilities

Figure 3.12-2

Non-residential Sensitive Receptors within 0.25 Mile of the Project Area

Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

0 0.5 1

Miles

N

TRC Results you can rely on

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: Employ Noise-Reducing Construction Practices during Temporary Construction Activities. PG&E will employ standard noise-reducing construction practices such as the following:

- Construction equipment will use noise-reduction devices that are no less effective than those originally installed by the manufacturer.
- Locate stationary equipment as far as practical from noise-sensitive receptors.
- Limit unnecessary engine idling.
- Limit all construction activity near sensitive receptors to daytime hours unless required for safety or to comply with line clearance requirements.

APM NOI-2: Notify Residents of Nighttime Construction. Should nighttime project construction be necessary because of planned clearance restrictions, residents within 300 feet of the construction site(s) will be notified at least 7 days in advance by mail, personal visit, door hanger, or e-mail and informed of the expected work schedule.

APM NOI-3: Notify Sensitive Receptors of Helicopter Use. Sensitive receptors within 300 feet of areas where helicopters will be used for construction will be notified by mail, personal visit, door hanger, or e-mail at least 7 days prior to beginning helicopter activities. Notification will also include 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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation.

As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line. The reconductored power line may generate some additional corona noise due to the increased size, but the corona noise will still be minimal and generally not be noticeable because the line is 60 kV, much less than 230 kV (the level at which corona noise is typically detected). Thus, no operation-related impacts related to noise will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

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? *No Impact*

Although local noise standards do not apply to this project, the project would not result in exposure of persons to or generation of noise levels in excess of standards. The City of Eureka does not have an established standard for the generation of noise from construction activities.

Likewise, short-term noise performance standards in the Noise Element of the Humboldt County General Plan do not apply to temporary construction noise.

There are no applicable standards of other agencies. Accordingly, the project will not exceed any levels identified in the local general plan or noise ordinance, and therefore construction of the proposed project will result in no impact.

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 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 3.12-5: Vibration Source Levels for Construction Equipment at 50 Feet provides vibration source levels for some construction equipment that will be used during construction. The source levels have been normalized to a reference distance of 50 feet.

Table 3.12-5: Vibration Source Levels for Construction Equipment at 50 Feet

Equipment	PPV at 50 Feet
Caisson Drill (drilling rig)	0.031
Loaded Truck	0.027

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 3.12-5: Vibration Source Levels for Construction Equipment at 50 Feet, vibration levels at most sensitive receptors will be below the barely perceptible response level. Since some sensitive receptors are as close as 10 feet from proposed construction equipment, vibration may be barely perceptible at times, but not excessive. Also, groundborne vibration and noise will occur during daytime hours and will be short-term and temporary at any one location. Therefore, construction of the proposed project will result in a less-than-significant impact.

c) Would the project result in substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? *No Impact*

Project construction will not result in a permanent increase in ambient noise levels. Operation and maintenance activities for the power line will be similar in scope to existing operation and maintenance activities. The new conductor, while a larger size, will still have a voltage of 60 kV, which does not generate audible corona noise under normal conditions. No permanent increase in ambient noise levels will occur in the project vicinity. Therefore, there will be no impact.

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*

Table 3.12-6 provides typical noise levels from various proposed construction equipment at a distance of 50 feet. The loudest potential noise during power line construction will be from use of a helicopter, which is approximately 108 dbA at a distance of 50 feet. At a typical minimum distance of 100 feet from receptors, this helicopter noise would be reduced to 102 dBA, and further reduced as the distance from a receptor increases when the helicopter proceeds along the flight path. Actual temporary increases in ambient noise levels in the project vicinity during construction will vary dependent on the location of the receptor, but exposure will be short-term, intermittent, and temporary. Adverse construction noise impacts (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, and APM NO-3 will further minimize construction equipment noise.

Table 3.12-6: Noise Levels from Common Construction Equipment

Equipment	Typical Sound Pressure Level (L_{max}) at 50 Feet (dBA)
Helicopter (Light/Medium)	90
Helicopter (Heavy)	108
Crane	85
Pickup truck	55
Air compressor	80

Source: FHWA 2006, FAA 2004.

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 eastern terminus of the project alignment is located within 2 miles of Murray Field, a public airport operated by Humboldt County. The entire project is located outside noise impact areas (60 dBA CNEL) associated with the airport (Humboldt County 2008). Project construction workers will not be exposed to excessive noise levels from airport operations. Any increases in noise levels in the project vicinity during construction will be minimal short term, intermittent, and temporary. Therefore, project construction will result in no impact.

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 impact under this criterion.

3.12.5 References

California Department of Transportation. 2013. Transportation and Construction Vibration Guidance Manual. Report CT-HWANP-RT-13-069.25.3.

______. 2006. Transportation- and Construction-Induced Vibration Guidance Manual. Noise, Vibration, and Hazardous Waste Management Office.

Federal Aviation Administration. 2004. *Nonmilitary Helicopter Urban Noise Study.*

Federal Highway Administration (FHWA). 2006. FHWA Roadway Construction Noise Model User's Guide.

Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06.

Humboldt County. 2017. General Plan, Noise Element.

______. 2008. *Murray Field Airport, Master Plan Update Environmental Assessment*. Prepared Humboldt, Department of Public Works, Division of Aviation. Online: https://humboldtgov.org/ArchiveCenter/ViewFile/Item/79. Accessed October 4, 2018.

U.S. Environmental Protection Agency (USEPA). 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. December 31, 1971*. Prepared by Bolt, Beranek and Newman under Contract 68-04-0047.

U.S. Department of Transportation. 2012. High-Speed Ground Transportation Noise and Vibration Impact Assessment.

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

Information for analysis of impacts was obtained from the U.S. Census Bureau. In addition, a site walk of the project alignment was conducted in May 2018.

3.13.3 ENVIRONMENTAL SETTING

Regional

The project area is located within the North Coast region of California, approximately 225 miles from the nearest major city (San Francisco).

Local

The project is located within Humboldt County and the City of Eureka. The 2015 population estimate for Humboldt County was 135,034 and for the City of Eureka was 26,985 (U.S. Census Bureau 2017a). The project alignment is located within the Eureka-Arcata-Fortuna Micropolitan Statistical Area (MSA). Within the MSA, the project alignment is located within the incorporated City of Eureka and surrounding Census-Designated Places, including Humboldt Hill (estimated population of 3,292), Pine Hills (estimated population of 2,959), Bayview (estimated population of 2,606), Cutten (estimated population of 3,037), and Myrtletown (estimated population of 4,477 [U.S. Census Bureau 2017a]).

Humboldt County has 62,156 housing units and a 14.7 percent vacancy rate, while the City of Eureka has 10,683 housing units and a vacancy rate of 12 percent (U.S. Census Bureau 2017b). Residential areas, including the South Bay, Humboldt Hill, Pine Hill, City of Eureka, and Cutten, are found along the project alignment.

Humboldt County and the City of Eureka experienced modest population growth (approximately 7 percent for the County and approximately 3 percent for the City) from 2000 to 2015 (U.S. Census Bureau 2017a, c).

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, Applicant-Proposed Measures (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 operations and maintenance phase.

As described in Chapter 2.0, Project Description, the proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV

Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

For the purposes of the impact analysis, the location of the existing structures is considered part of the existing baseline conditions.

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*

The project is proposed to improve transmission system reliability and efficiency for portions of unincorporated Humboldt County and the City of Eureka. The project will not extend new power lines or other infrastructure into areas not already served. While the project will improve the electric transmission system reliability, power availability and reliability in the area are not a constraint to population growth. The project will not generate any new development. The project does not include new housing or businesses, land use changes, or infrastructure increases that will induce substantial population growth in the area.

Construction workers will be drawn primarily from either existing Pacific Gas and Electric Company (PG&E) staff in the local area or workers who commute from neighboring cities. Because the construction duration will be short, it is not expected that the construction workforce will permanently relocate to the area. Therefore, no impact will occur. Thus, the project would not directly or indirectly induce substantial population growth.

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*

The project will not displace people, and accordingly, replacement housing will not be necessary; therefore, no impact will occur.

3.13.5 REFERENCES

United States Census Bureau. 2017a. 2011-2015 American Community Survey 5-Year Estimates. Series S0101, Age and Sex. American FactFinder available at: https://factfinder.census.gov. Accessed: March 20, 2017.

United States Census Bureau. 2017b. 2011-2015 American Community Survey 5-Year Estimates. Series DP04, Selected Housing Characteristics. American FactFinder available at: https://factfinder.census.gov. Accessed: March 20, 2017.

United States Census Bureau. 2017c. 2005-2009 American Community Survey 5-Year Estimates. Series S0101, Age and Sex. American FactFinder available at: https://factfinder.census.gov. Accessed: March 20, 2017.

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 no 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. Temporary construction-related impacts on schools and parks—such as dust and noise—are discussed in Sections 3.3, Air Quality, and 3.12, Noise, respectively. 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 based on reviews of the Humboldt County and City of Eureka websites, and review of the Humboldt Number One Fire District website.

3.14.3 ENVIRONMENTAL SETTING

3.14.3.1 Fire Protection

Humboldt Bay Fire (HBF) was founded in 2011 through a Joint Powers Authority consolidating the Humboldt No. 1 Fire Protection District (HFPD) and the City of Eureka Fire Department. HBF is a full-service fire department responding to all types of emergencies, including fires, emergency medical calls, rescues, and hazardous materials emergencies.

HBF's 50 professional firefighters operate from five fire stations. Fire Station No. 1 is located at 533 C Street in downtown Eureka, approximately 3.2 miles northwest of Humboldt Substation. This station operates two ladder trucks, a Type 1 engine, a hazardous materials response vehicle, and a rescue truck. Fire Station No. 2 is located at 755 Herrick Avenue in Eureka (approximately 1.9 miles northeast of Humboldt Bay Substation). This station operates one Type 1 engine and one Type 3 engine. Fire Station No. 3 is located at 2905 Ocean Avenue (approximately 3.2 miles northeast of the Humboldt Bay Substation). This station operates one Type 1 engine and a water tender. Fire Station No. 4 is located at 1016 Myrtle Avenue (approximately 2.3 miles northwest of Humboldt Substation). This station operates one Type 1 engine and a medium-duty rescue vehicle. Fire Station No. 5 is located at 3455 Harris Street in Eureka (approximately 0.9 mile west of Humboldt Substation). This station operates two Type 1 engines and one Type 3 engine (HBF 2017).

The privately-owned City Ambulance of Eureka also provides medical services. The City Ambulance of Eureka station is located at 135 West 7th Street.

3.14.3.2 Police Protection

The Humboldt County Sheriff's Office provides law enforcement services to all unincorporated areas of the County. The project area is covered by the Eureka Main Station, located at 826 4th Street, which is staffed with two Lieutenants, four Sergeants, six Corporals, 21 Deputy Sheriffs, and one Community Services Officer (Humboldt County 2017). The Sheriff is also the designated director of the County Office of Emergency Services (OES), which is the primary local coordination agency for emergencies and disasters affecting residents, public infrastructure, and government operations in the County. The OES coordinates and participates in emergency planning, response, and recovery in collaboration with local, state, and federal partners.

The City of Eureka Police Department provides law enforcement services within the incorporated city boundaries. The Department's Patrol Section, located at 604 C Street, approximately 4.6 miles from Humboldt Bay Substation, has six Sergeants and 24 Field Officers (City of Eureka 2017).

3.14.3.3 Schools

The Eureka City Unified School District (EUSD) provides elementary through high school education to the City of Eureka and surrounding areas. The South Bay Union School District (SBUSD) provides elementary through eighth grade education to the City of Eureka and surrounding areas. Two EUSD elementary schools—Grant and South Bay—are located within 0.25 mile of the project area. Three preschools (Little People's Corner Preschool, Play & Learn Preschool, and Powell Family Childcare) are located within approximately 0.25 mile of the project area. Distances from the project area are shown below in Table 3.14-2: Schools within 0.25 Mile of the Project Alignment. Grant Elementary School is located adjacent to the power line; no school grounds are crossed by the existing power line or proposed construction work areas.

Table 3.14-2: Schools within 0.25 Mile of Project Alignment

School	Distance From Project Alignment (miles)
Grant Elementary School	0.01
South Bay Elementary School	0.26*
Little People's Corner Preschool	0.01
Play & Learn Preschool	0.05
Powell Family Childcare	0.08

* The South Bay Elementary School is located just outside 0.25 mile from the project alignment, but is included here as a sensitive receptor because of helicopter work that will take place in the area.

3.14.3.4 Parks

The City of Eureka Parks Division maintains six community park facilities and seven neighborhood park facilities. The City of Eureka operates the Municipal Golf Course, crossed by the existing power line (City of Eureka 2017a). The Ninth District Agricultural Association operates the Redwood Fields Ballpark and the Redwood Acres Fairground, both located adjacent to the existing power line. The McKay Community Forest is crossed by the existing power line. These recreational facilities are discussed in Section 3.15, Recreation.

Humboldt County also maintains public parks. There are no Humboldt County public parks located within 300 feet of the project alignment.

3.14.3.5 Other Public Facilities

No public facilities are located within 300 feet of the alignment. As the project involves reconductoring an existing 60 kV power line, implementation of the project is not anticipated to have any impacts on other public facilities not otherwise discussed in this section.

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 no impact on public services and no Applicant-Proposed Measures (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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description. For the purposes of the impact analysis, the location of the existing public service structures and other areas are considered part of the existing conditions.

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? *No Impact*

Project construction will result in a temporary, short-term increase of up to approximately 50 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. Therefore, no impact will occur.

Fire and Police Protection

Construction activities will not require additional fire or police services in the area. As described in Section 3.16, Transportation and Traffic, during project construction, Pacific Gas and Electric Company will coordinate any road closures with emergency service providers so that response times will not be affected. Therefore, the project will have no impacts on fire or police protection.

Schools

The project is within approximately 0.25 mile of two public schools: one operated by the EUSD (Grant Elementary School), and one operated by the SBUSD (South Bay Elementary School). The project is also within 0.25 mile of three private preschools: Little People's Corner Preschool, Play and Learn Preschool, and Powell Family Childcare.

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.

The project alignment is adjacent to the north side of Grant Elementary School on Oak Street. Potential impacts from construction activities are addressed in Section 3.12, Noise

Parks

One community forest, a municipal golf course, and two Ninth District Agricultural Association-owned recreational facilities are located within 300 feet of the project alignment. The Redwood Fields Ballparks are located 200 feet south of the existing power line, the Redwood Acres Fairgrounds are located adjacent to the project alignment, and McKay Community Forest are crossed by the existing powerline. The project will not involve developing new residential units or services that will generate a new daytime or residential population in the area that will increase the demand on parks. Construction workers traveling to the area may use existing public services or amenities such as parks; however, this potential increase in demand will be minimal and temporary and will not exacerbate the need for or deterioration of the park facilities or result in the need for new facilities. No impact will occur.

Access to construction work areas through or immediately adjacent to the Eureka Municipal Golf Course, Redwood Fields Ballparks, the Redwood Acres Fairgrounds, and McKay Community Forest may be necessary. Potential noise impacts from construction activities near these parks are addressed in Section 3.12, Noise. Construction activities may result in short-term, temporary closures where necessary at adjacent parks and recreation facilities. Construction- and operation-related impacts on parks in the project area are evaluated in Section 3.15, Recreation. As indicated, PG&E will coordinate with the operators of the Redwood Fields Ballpark, Redwood Acres Fairgrounds, and McKay Community Forest during project construction activities to minimize any potential construction impacts from the project under APM REC-01.

Other Public Facilities

The project will not result in an adverse effect to any other public facilities, and no other new or altered governmental facilities are needed to serve the project; therefore, no impact will occur.

3.14.5 REFERENCES

City of Eureka. 2017. City of Eureka Parks/Playgrounds and Facilities. Online: http://www.ci.eureka.ca.gov/civicax/filebank/blobdload.aspx?blobid=4854. Accessed on March 22, 2017.

Eureka City Schools. 2018. Website Homepage. Online at: https://www.eurekacityschools.org/index.php?option=com_content&view=featured&Itemid=102. Accessed on August 15, 2018.

Humboldt Bay Fire. 2017. Website Homepage. Online: http://www.hbfire.org. Accessed on March 22, 2017.

______. 2017. Fire Apparatus Webpage. Online: http://www.hbfire.org/apparatus.html. Accessed on March 22, 2017.

______. 2017. Fire Stations and Locations Webpage. Online: http://www.hbfire.org/stations.html. Accessed on March 22, 2017.

Humboldt County. 2017. Humboldt County Sheriff's Office Webpage. Accessed at http://www.humboldtgov.org/187/Sheriffs-Office. Accessed on March 22, 2017.

Humboldt County Office of Emergency Services Webpage. Online: https://humboldtgov.org/356/Office-of-Emergency-Services. Accessed on August 15, 2018.

Redwood Acres. 2018. Accessed at: http://www.redwoodacres.com/. Accessed on September 24, 2018.

South Bay Union School District Webpage. Online: https://southbayusd.org/. Accessed on August 15, 2018.

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 impacts will be less than significant. 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. Temporary construction impacts on parks – such as dust, hazards, and noise – are discussed in Section 3.3, Air Quality, Section 3.8, Hazards and Hazardous Materials, and Section 3.12, Noise, respectively. 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 local, regional, and state parks. Various documents and reference materials were reviewed to complete this analysis, including the City of Eureka 2040 General Plan (amended May 2018), the Humboldt Bay Area Plan for the Humboldt County Local Coastal Program (amended December 2014), the Humboldt County General Plan (adopted October 23, 2017), and the California Coastal Commission Program Overview.

3.15.3 ENVIRONMENTAL SETTING

3.15.3.1 Regional Setting

The Humboldt Bay region offers a variety of water-based and terrestrial recreational opportunities and locales. Humboldt Bay is the largest wetland and estuarine habitat in the coastal zone and contains approximately 23 percent of the coastal wetlands remaining in California. Public use of this habitat includes biking on established trails, kayaking, recreational angling, waterfowl hunting, etc.

In addition to county and local facilities, the region includes recreational opportunities on state and federal lands, including Redwood National and State Parks, Six Rivers National Forest, Patrick's Point State Park, Humboldt Redwoods State Park, Fort Humboldt State Historic Park, the Kings Range Conservation Area, and the Bureau of Land Management's Headwaters Forest Preserve. With nearly 28 percent of Humboldt County (630,000 acres) under public ownership, there is significant recreation and tourism value in the larger Humboldt County area.

3.15.3.2 Local Setting

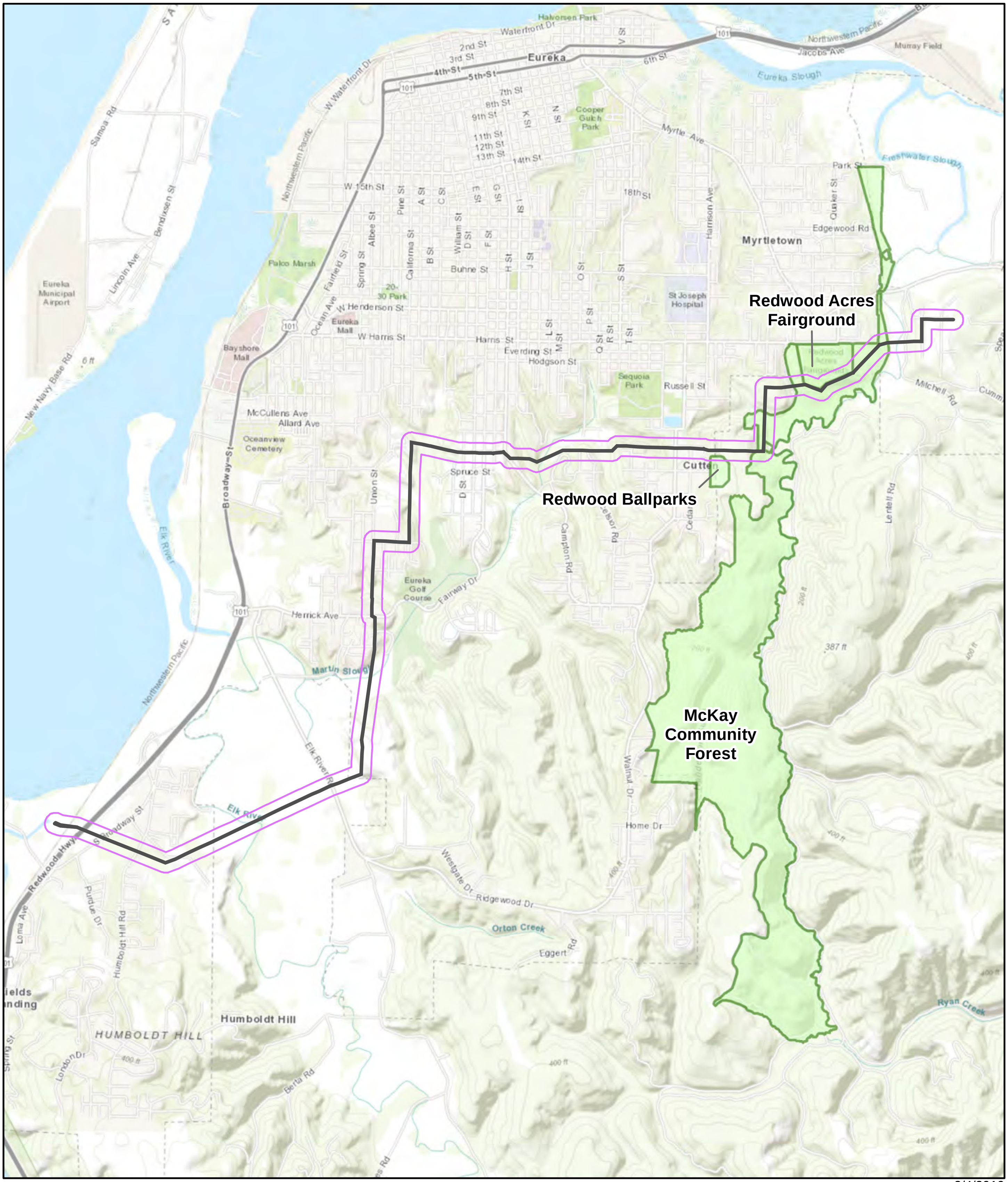
Parks and recreational facilities located within 300 feet of the project alignment or a project construction support area are shown in Figure 3.15-1: Parks and Recreational Facilities.

Humboldt County

There are 16 county parks, campgrounds, and beaches operated by the Humboldt County Parks Division, as well as recreational areas and reserves operated by special districts and non-profit organizations. McKay Community Forest is managed by Humboldt County for multiple purposes including public access and recreation, timber harvest, and watershed and resource conservation. The project crosses the 1,000-acre McKay Forest and associated planned trails. Access points and trails have not yet been completed, although it is anticipated that they may be open at the time of project construction. Redwood Acres Fairgrounds, managed by the 9th District Agricultural District is adjacent to the alignment, and Redwood Fields Ballparks are approximately 200 feet south of the alignment. Other recreational areas in the broader vicinity of the project alignment include public coastal access at Buhne Point (approximately 0.3 mile west of Humboldt Bay Substation), the Fields Landing Boat Ramp, (approximately 0.7 mile southwest of Humboldt Bay Substation), and the PG&E trail along the waterfront approximately 0.2 mile north of Humboldt Bay Substation).

City of Eureka

The City of Eureka owns and operates approximately 133 acres of parks, which includes seven neighborhood parks and six community park facilities. Multiple public parks and recreational facilities are located in the vicinity of the project alignment, including the community parks of Sequoia Park (which includes the Sequoia Park Zoo and Sequoia Park Garden), and the Hartman/Kennedy Ballfields. Per the City of Eureka 2040 General Plan, community parks serve the needs of residents within a 2-mile radius, range from 30 to 50 acres, and provide both active and passive recreation for all age groups. The City also operates the Eureka Municipal Golf Course. As of January 2018, there are approximately 6.3 miles of waterfront trails in the City of Eureka, with plans for expansion to connect to other existing trail systems.



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 3_15-1 Parks and Recreational Facilties within 300 Feet of the Project Alignment.mxd

2/4/2019

Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)

300-foot Buffer of the Project Alignment

Parks and Recreation Facilities

Figure 3.15-1

Parks and Recreational Facilties within 300 Feet of the Project Alignment

Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

0 0.5 1

Miles

N

The closest of these facilities is the golf course located approximately 550 feet from the project alignment. Table 3.15-2 lists parks and recreational facilities within 300 feet of the project alignment.

Table 3.15-2: Parks and Recreational Facilities within 300 Feet of the Project

Parks and Recreational Facilities	Approximate Distance to Project Alignment
Redwood Fields Ballparks	200 feet
Redwood Acres Fairgrounds	Adjacent to alignment
McKay Community Forest	Crossed by alignment

3.15.4 APPLICANT-PROPOSED MEASURES AND POTENTIAL IMPACTS

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

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 implement the following Applicant-Proposed Measure (APM):

> ***APM REC-01: Coordination and Signage.*** PG&E will coordinate with the operators of the Redwood Fields Ballpark, Redwood Acres Fairgrounds, and McKay Community Forest during project construction activities to minimize any potential construction impacts from the project. Signage notifying of construction activities will be posted at these recreational facilities at least one week in advance of construction.

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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description. For the purposes of the impact analysis, the location of the existing structures in parks and other recreation areas are considered part of the existing conditions.

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? *Less-than-Significant Impact*

Increases in overall permanent demand for recreational facilities typically are associated with substantial increases in population, either by the construction of new residences or by the creation of a major job generator that will indirectly increase the number of residents in an area. Implementation of the project will not result in a substantial increased demand for recreational facilities or adversely affect the existing recreational resources in a permanent manner. Construction workers may use local parks and recreational facilities, but a majority of workers already live in the area and already use these facilities; the limited number of workers from outside the area needed for the project will not result in a substantial increase in demand on such facilities, causing their accelerated physical deterioration.

Although the project will not result in physical deterioration of any parks, construction activities may result in short-term, temporary closure of multi-use trails within the McKay Community Forest (should the planned trails be open by the time of construction[1]), and the use of portions of peripheral areas at Redwood Fields Ballparks and Redwood Acres Fairgrounds. Any closures required for public safety during construction will be temporary and short term. Therefore, impacts will be less than significant. Implementation of APM REC-1 will further reduce the less-than-significant impacts.

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.

[1] According to Humboldt County Public Works, commencement of trail-building in McKay Community Forest was targeted for late 2018 (Humboldt County, 2018).

3.15.5 REFERENCES

City of Eureka. 2018. *City of Eureka 2040 General Plan.* Amended May 2018. Available at: http://eureka2040gpu.com/Links/pdfs/Eureka%20General%20Plan%20May2018%20Final%20(web).pdf. Accessed: September 6, 2018.

Humboldt County. 2014. *Humboldt County General Plan Volume II; Humboldt Bay Area Plan of the Humboldt County Local Coastal Program*. Amended December 2014. Available at: https://humboldtgov.org/DocumentCenter/View/50844/Humboldt-Bay-Area-Local-Coastal-Plan. Accessed: September 6, 2018

______. 2017. *Humboldt County General Plan for Areas Outside the Coastal Zone.* Adopted October 23, 2017. Available at: https://humboldtgov.org/DocumentCenter/View/61984/Humboldt-County-General-Plan-complete-document-PDF. Accessed: September 6, 2018.

______. 2018. Humboldt County; McKay Community Forest. Available at: https://humboldtgov.org/mckayforest. Accessed: November 9, 2018.

State of California. 2018. *California Coastal Commission Program Overview*. Available at: http://www.coastal.ca.gov/whoweare.html. Accessed: September 6, 2018.

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 of the project. The analysis concludes that, although existing traffic conditions will be temporarily affected by project construction, project-related impacts on transportation and traffic will be less than significant. The Applicant-Proposed Measures (APMs), 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 below 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.

Americans with Disabilities Act Standards for Accessible Design

The proposed project will involve the reconstruction of sidewalks at pole locations and will be required to comply with Americans with Disabilities Act (ADA) standards. The Department of Justice enacted the ADA in 1990, which adopted enforceable accessibility standards for facility design. The revised ADA standards, adopted in 2010, set minimum requirements for newly designed and constructed or altered state and local government facilities, public accommodations, and commercial facilities. State and local government facilities must follow the requirements of the 2010 Standards, including the *2010 Standards for State and Local Government Facilities: Title II*, specifically:

- Title II regulations at 28 CFR 35.151; and
- 2004 ADA Accessibility Guidelines at 36 CFR part 1191, appendices B and D.

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 California Public Utilities Commission (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.

Humboldt County

The Circulation Element (chapter 7) of the Humboldt County General Plan (General Plan) describes the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local transportation facilities. Humboldt County has over 1,400 miles of County-maintained roads and city streets, and 378 miles of state highways (Humboldt County 2017b). The Community Infrastructure and Services Technical Report (Technical Report), prepared to support the General Plan, lists roadways in the south Eureka area that are operating at or above capacity during peak hours. The General Plan and Technical Report both provide recommendations on improvements to circulation in the County.

Level of Service (LOS) is a qualitative measure that describes operational conditions within a traffic stream and is expressed from “A” with no congestion to “F” with extreme congestion. A LOS of “C” or better defines an acceptable traffic operation condition (Humboldt County 2017a). Table 3.16-2, LOS Description below presents roadway traffic flow characteristics for each different LOS from “A” through “F.”

Table 3.16-2: LOS Description

LOS	Description of Traffic Flow Characteristics
A	Free-flowing conditions with no delay.
B	Free-flowing conditions; however, speed and maneuverability are slightly restricted due to the presence of other vehicles.
C	Stable traffic flow, with less freedom to select speed, change lanes, or pass. Some delay may be experienced.
D	A traffic stream approaching unstable flow, with reduced speed and maneuverability.
E	Unstable traffic flow with rapidly fluctuating speeds and flow rates.
F	Forced traffic flow, where speed and flow may drop to zero with high densities.

Source: Humboldt County General Plan (Humboldt County 2017a)

Humboldt County Association of Governments

The Humboldt County Association of Governments (HCAOG) 20-Year Regional Transportation Plan 2017 Update (RTP), prepared by the HCAOG and adopted December 2017, is a long-range transportation planning document for the County. Updates are prepared in coordination with Caltrans District 1, local transit authorities and transportation agencies, local tribes, and other stakeholders to address all modes of transportation. The RTP describes the condition of existing facilities and provides recommendations on how to improve circulation throughout the County. HCAOG’s goal is to facilitate and further develop transportation options including complete streets, trails, transit, bicycling, walking, ride-sharing and bike-sharing, freight transport, and emergency transportation (HCAOG 2017).

City of Eureka

Roadways, bikeways, public transit, and other components of the transportation system are described in the Infrastructure chapter of the City’s General Plan (City of Eureka 2018). The document also provides goals and policies for improving the transportation system. The City of

Eureka's goal is to maintain LOS "C" operation on all roadway segments, except for any portion of Highway 101, where LOS "D" is acceptable (City of Eureka 2015).

3.16.2.2 Methodology

Traffic data and other transportation system information were obtained from maps, literature searches, and aerial photos (see Section 3.16.5, References). Project activities were evaluated within the context of surrounding transportation and traffic facilities and resources, to determine whether the project may result in changes that will directly or indirectly affect those facilities or resources.

3.16.3 Environmental Setting

This section includes a description of the roadways that will be used by workers and construction vehicles 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. Figure 3.16-1: Existing Transportation Facilities illustrates the transportation facilities that currently exist in the project area.

3.16.3.1 Regional Roadways

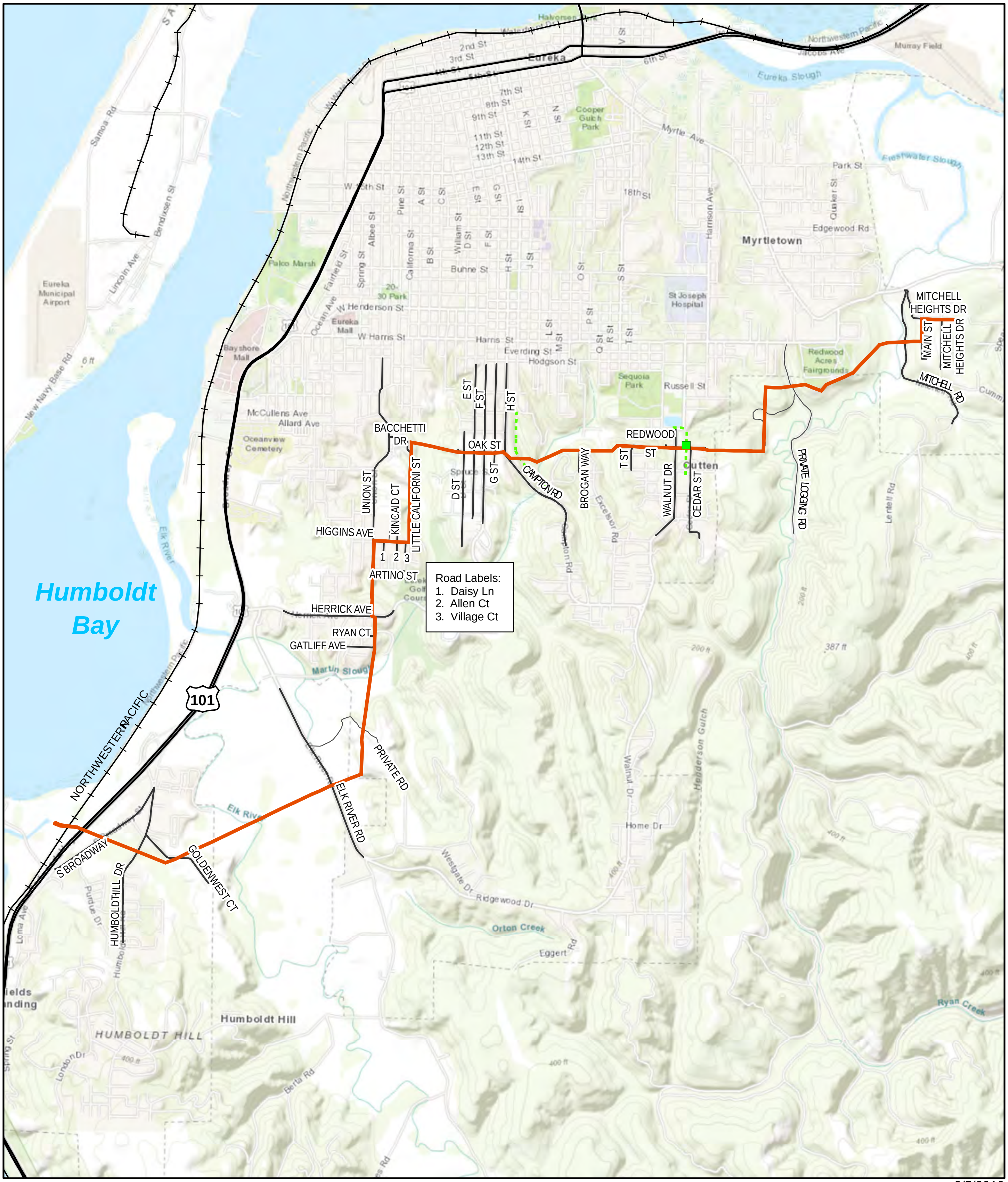
The roadway network that will used for the project is located in central Humboldt County, within and in the vicinity of the City of Eureka. The transportation system includes an interconnected network of federal, state, county, and city roads. The regional transportation system near the project area comprises two regional highways (SR 36 and SR 299), and one freeway (Highway 101). The following summaries include data from Caltrans on traffic counts and truck traffic (Caltrans 2015, 2016).

U.S. Highway 101

Highway 101 is the primary freeway corridor in the region, linking cities on the northern California coast with San Francisco and other major cities. Access to and from Highway 101 in the vicinity of the project site includes the Herrick Avenue interchange and the King Salmon Avenue interchange for northbound traffic. Highway 101 carries approximately 29,800 vehicles per day at the Herrick Avenue interchange, and approximately 26,500 vehicles per day at the King Salmon Avenue interchange (Caltrans 2016). Southbound traffic access from Highway 101 includes the Eureka Fourth/Myrtle Avenue interchange, which carries approximately 23,400 vehicles per day (Caltrans 2016). Truck traffic accounts for 8.58 percent of traffic south of Humboldt Bay Substation (Highway 101 at Loleta Drive), and 4.90 percent of traffic north of Humboldt Bay Substation (Highway 101 at the northern limit of the City of Eureka [Caltrans, 2015]). The existing Humboldt Bay-Humboldt #1 60 kV Power Line spans over Highway 101 north of the King Salmon Avenue interchange.

SR 36

SR 36 runs west-east from Highway 101 near Fortuna, passes through the North Coast Range, and joins Interstate 5 at Red Bluff. SR 36 carries an average of 4,900 vehicles per day on the eastern limit of Alton (Caltrans 2016), with truck traffic accounting for 18.25 percent of total traffic (Caltrans 2015).



\\apaenvfile01\gis\1-PROJECTS\PG&E\301602-Humboldt_PEA\4-MXD\Figure 3_16-1 Existing Transportation Facilities.mxd

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- Humboldt Bay-Humboldt #1 60 kV Power Line (Proposed Project)
- Bus Stop Crossed by Project
- Bus Route Crossed by Project
- U.S. Highway
- Local Road Crossed by Project
- Private Road Crossed by Project
- Railroads

0 0.5 1
Miles

N

TRC
Results you can rely on

Figure 3.16-1
Existing Transportation Facilities
Humboldt Bay-Humboldt #1 60 kV Reconductoring Project

SR 299

SR 299 also runs west-east from the Highway 101 junction near Arcata, passes through the North Coast Range, and joins Interstate 5 at Redding. SR 299 carries an average of 12,400 vehicles per day at the Highway 101 junction near Arcata (Caltrans 2016), with truck traffic accounting for 7.87 percent of total traffic (Caltrans 2015).

3.16.3.2 Local Roadways

The local transportation network for the project consists of city-maintained roads (such as F Street and Oak Street), county-maintained roads (such as Elk River Road, Walnut Drive, and Mitchell Road), and various private roads. These roadways are shown in Figure 3.16-1: Existing Transportation Facilities.

3.16.3.3 Existing Traffic Volumes and Levels of Service

Table 3.16-3, Roadways with LOS "C" or Worse identifies the road segments within the incorporated and unincorporated areas of the county that are either below LOS "C" now or projected to fall below as a result of cumulative growth within the County projected to occur between 2028 and 2040 (Humboldt County 2017b).

Table 3.16-3: Roadways with LOS "C" or Lower

Road	Segment	Location	2010 LOS	2028/2040 LOS
Highway 101	Between 6th St and SR 255	Eureka/Arcata	D	D/E
Highway 101	Between 6th St and Herrick Ave	Eureka	D	D/D
Main Street	Between 7th St and 13th St	Fortuna	D	D/D
Kenmar Road	Between Highway 101 and Fortuna Blvd	Fortuna	D	D/D

3.16.3.4 Bicycle Facilities

The Humboldt Regional Bicycle Plan Update 2018 describes the existing and proposed bikeways within incorporated and unincorporated Humboldt County (HCAOG 2018b). Class I bikeways are separated, with rights-of-way designated exclusively for non-motorized use; Class II bikeways provide on-street bike lanes; and Class III bikeways share the roadway. In the County, the existing power line crosses the proposed Pacific Coast Bicycle Route at the following locations: along Highway 101 (Class III bikeway), at Humboldt Hill Road (Class III bikeway), and at four proposed Class II bikeways (Elk River Road, Herrick Avenue, F Street, and Walnut Drive). In the City of Eureka, the existing Class III bikeways on Walnut Street and F Street and the proposed Class II bikeway on Campton Road near Grant Elementary School are intersected by the project area. The existing power line does not cross any Class I bikeways.

3.16.3.5 Air Traffic

Samoa Field (formerly Eureka Municipal Airport, owned by the City of Eureka) is located approximately 2.5 miles north of Humboldt Bay Substation, across Humboldt Bay (FAA 2018c). The county-owned Murray Field is located approximately 1.2 miles from Humboldt Substation (FAA 2018b). These airports serve as general aviation facilities for the Eureka area (fuel is not available at Samoa Field). The California Redwood Coast – Humboldt County Airport, also known as the Arcata-Eureka Airport, is approximately 13 miles north of the Humboldt Substation and is the only airport in the county that offers commercial air service (FAA 2018a). Murray Field Airport may be used for overnight storage of helicopters.

3.16.3.6 Transit and Rail Services

Humboldt County is served by several public bus transit systems, including Eureka Transit Service (ETS), Arcata and Mad River Transit System, Blue Lake Rancheria Transit System, Redwood Transit System, and Klamath-Trinity Non-Emergency Transportation (Humboldt County 2017b). ETS serves the project area, and the existing power line crosses two ETS bus routes (Figure 3.16-1: Existing Transportation Facilities).

Rail service in Humboldt County is limited to the North Coast Rail Authority (NCRA) and the Northwestern Pacific Railroad. NCRA owns the railroad between Arcata and Healdsburg but does not currently operate any freight or passenger service (Humboldt County 2017b). The project alignment does not cross any active railroad tracks.

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 TT-1: Temporary Traffic Controls.*** PG&E will obtain necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop road and lane closures or width reduction or traffic diversion plans as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best management practices and local jurisdictional encroachment permit requirements, which may include traffic controls such as signs, cones, and flaggers to minimize impacts on traffic and transportation in the project area. PG&E will coordinate with the Eureka Transit Service regarding the schedule and scope of construction activities that could impact bus routes crossed by the project alignment and will coordinate temporary relocation of bus stops if necessary.

APM TT-2: Air Traffic Control. PG&E will implement the following protocols related to helicopter use:

- PG&E will comply with all applicable FAA regulations regarding air traffic;
- PG&E will prepare a Helicopter Use Plan;
- Helicopter operators will coordinate all project helicopter operations with local airports before and during project construction; and
- PG&E will comply with FAA requirements for helicopter activities in residential areas that will reduce safety risks, and if necessary coordinate with residents that may need to temporarily evacuate their properties.

***APM TT-3: Coordinate Road Closures with Emergency Service Providers and School Districts*.** At least 24 hours prior to implementing any road or lane closure, PG&E will coordinate with applicable emergency service providers and school districts in the project vicinity. PG&E will provide information regarding the road or lanes to be closed, the anticipated date, time, and duration of closures, and a contact telephone number.

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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description.

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*

The movement of construction vehicles along public roads and the temporary closure of traffic lanes and roadways during pole and conductor replacement along existing roads may result in temporary, short-term traffic impacts on truck routes and project area access routes.

Figure 3.16-1: Existing Transportation Facilities depicts existing roadways that may be used by project vehicles to access the project area. Section 2.8.10, Construction Workforce and Equipment, describes the typical construction crew size and construction equipment typically used during each phase of construction. Because construction locations and activities will be temporary and shift locations over an approximate 6-month period along the linear construction of the project, construction-related activities will not last long enough to conflict with any traffic plans, ordinances, or policies that establish measures of effectiveness for the performance of the circulation system.

Temporary lane closures will be required at various locations to ensure public safety during the replacement of poles and conductors. Guard structures or specially equipped bucket trucks will be employed where the project alignment crosses over public roads, such as Highway 101, to allow traffic to safely use the road while PG&E removes the existing conductor and pulls the new conductor into place. However, if road and lane closures are necessary, they will be temporary and any effect on the operations of these roadways or the overall circulation system at any given location along the route will be minimal.

Use of bikeways and operation of bus routes along roads that parallel or intersect the existing power line may be temporarily affected when truck traffic is accessing a structure location and when road or lane closures are necessary. Temporary closures of bike lanes may occur along with road and lane closures. Mass transit, particularly bus routes, may also be subject to minor delays caused by temporary road closures during reconductoring or lane closures during pole replacements. However, road and lane closures that may affect these routes will be short-term and will only result in temporary delays of service.

Due to the temporary nature of any necessary closures to roadways and bike lanes and associated potential delays on bus routes, and with PG&E's implementation of APM TT-1, which requires that traffic controls and other traffic safety measures are in place to maintain proper traffic flow on both local and regional roadways during temporary construction activities, impacts will be less than significant.

b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? *Less-than-Significant Impact*

As described in Section 3.16.2, Humboldt County strives to maintain streets and roadways operating at LOS "C" or higher, except for any portion of the US 101 where LOS "D" is acceptable. Although construction activities may generate temporary increases in traffic on regional and local roadways, the effects will be minimal, short-term, and periodic, and will not result in any long-term degradation in operating conditions or decrease in LOS on any proposed project roadways. To further reduce impacts, PG&E will implement APM TT-1, which requires that traffic controls and other safety measures are in place to maintain proper traffic flow on both local and regional roadways during temporary construction activities. Accordingly, impacts will be less than significant.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? *Less-than-Significant Impact*

Helicopters will be used, in addition to ground equipment, to remove and install poles and structures to minimize ground disturbance. Approximately 35 construction sites are proposed to be accessed by helicopter to complete pole installation and/or removal. To accommodate helicopter use, approximately 10 helicopter landing zones have been preliminarily identified. Helicopter landing zones are typically approximately 1 acre in size, but the exact footprint of a landing zone will depend on conditions on the ground at the time of construction. Helicopters that are carrying equipment or construction materials will not pass directly over major highways or habitable structures. PG&E will prepare a Helicopter Use Plan (pursuant to APM TT-2), which will identify the anticipated flight paths and general helicopter operation procedures and will be submitted separately to CPUC staff. In accordance with APM TT-2, PG&E's helicopter operator will follow protocols regarding air traffic and will comply with FAA requirements before and during all construction-related helicopter operations. The majority of construction activities that will involve the use of helicopters will be located within the PG&E alignment, and will not result in substantial safety risks. With implementation of APM TT-2, impacts on air traffic patterns will be less than significant.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? *Less-than-Significant Impact*

Project construction will not alter any public roadways or intersections, nor will it introduce an incompatible use to public roadways. Existing access roads (non-public roadways) will be re-established as part of construction activities, as necessary. These roads have generally been used previously for maintenance activities for the existing power lines. Therefore, the project will not increase hazards due to design features of roadways.

Heavy construction equipment will be used for pole work and reconductoring activities within roadways at project work areas, requiring single-lane closures. Equipment may also be used for installation of temporary crossing guard structures where the alignment crosses roadways. However, use of such equipment will only occur within temporary work easements that will be isolated from adjacent traffic lanes. Any road closures during construction will be temporary, short term, and consistent with applicable regulations, and will not involve any permanent road closures. APM TT-1, which requires that traffic controls and other traffic safety measures are in place to maintain proper traffic flow on both local and regional roadways during temporary construction activities, will further reduce any impacts. Accordingly, impacts will be less than significant.

e) Would the project result in inadequate emergency access? *Less-than-Significant Impact*

Emergency access routes will be maintained throughout project construction and operation. Construction vehicles and equipment are anticipated to access project construction areas for towers and poles by using existing paved, dirt, or gravel roads, and overland travel routes. Construction vehicles and equipment needed at the pull sites are expected to be staged or parked within project area easements, approved temporary construction easements, or alongside access roads. Any road or lane closures will be temporary and short term, and these closures will be coordinated with Caltrans and local jurisdictions to reduce any potential temporary and short-term effects on emergency access. Although such closures can indirectly affect emergency access by causing congestion that could slow response times, emergency vehicles will be provided access even in the event of temporary road or lane closures. In addition, PG&E will implement APM TT-3, which requires that PG&E coordinate road and lane closures with emergency service providers. APM TT-1, which requires that traffic controls and other traffic safety measures are in place to maintain proper traffic flow on both local and regional roadways during temporary construction activities, will further minimize any less-than-significant impact on traffic congestion. Accordingly, impacts will 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*

The project will not conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, and will have no long-term impact on the performance or safety of such facilities.

The project will have short-term impacts on public transit, bicycle, and pedestrian facilities. Project construction could require the temporary relocation of two ETS bus stops and will require temporary lane closures in the immediate vicinity of these bus stops. Combined, this will temporarily disrupt the operation of buses. To minimize impacts on bus routes, PG&E will implement APM TT-1, which requires pre-construction coordination with ETS as well as traffic controls and other traffic safety measures to maintain proper traffic flow on both local and regional roadways during temporary construction activities.

The use of Class II and Class III bike lanes could be temporarily affected by construction. Short-term road closures during conductor installation and lane closures during pole installation will impact Class III bikeways that share these roadways and lanes. The southbound Class II bike lane along Walnut Street may be temporarily closed during replacement of a single pole at the intersection of Walnut Street and Redwood Street, and both the northbound and southbound bike lanes may be temporarily closed during conductor installation activities. These closures will be brief, and PG&E will implement APM TT-1 and comply with the conditions of any necessary encroachment permits; thus, impacts to the performance or safety of bike lanes will be less than significant.

Where existing poles are located in or adjacent to sidewalks, the sidewalk in the vicinity of an existing pole will be closed during pole and conductor replacement activities. These closures will be short term, lasting only a few days at each location. PG&E will implement APM TT-1, which will provide for pedestrian detours and appropriate signage in the area of temporary sidewalk closures. With implementation of APM TT-1, impacts to the performance of pedestrian facilities will be less than significant, and there will be no impacts to the safety of pedestrian facilities.

As presented above, with implementation of APM TT-1, impacts on public transit, bicycle, or pedestrian facilities will be temporary and less than significant.

3.16.5 REFERENCES

California Department of Transportation (Caltrans). 2015. *Annual Average Daily Truck Traffic on California State Highways*. Online: http://dot.ca.gov/trafficops/census/docs/2015_aadt_truck.pdf. Accessed: September 13, 2018.

______. 2016. *2016 Traffic Volumes on California State Highways*. Online: http://www.dot.ca.gov/trafficops/census/docs/2016_aadt_volumes.pdf. Accessed: September 13, 2018.

City of Eureka. 2015. *Draft Eureka General Plan Update Mobility Policy Paper*. March 23, 2015. Online: http://www.eureka2040gpu.com/Links/pdfs/Mobility%20Policy%20Paper%203-23-15.pdf. Accessed: September 13, 2018. 15 pages.

______. 2018. *City of Eureka 2040 General Plan.* Amended May 2018. Online: http://eureka2040gpu.com/Links/pdfs/Eureka%20General%20Plan%20May2018%20Final%20(web).pdf. Accessed: September 13, 2018.

Federal Aviation Administration. 2018a. *Aeronautical Information Services - National Flight Data Center (NFDC) ACV (KACV) California Redwood Coast – Humboldt County, Arcata/Eureka, CA – United States*. Online: https://nfdc.faa.gov/nfdcApps/services/ajv5/airportDisplay.jsp?airportId=KACV. Accessed: September 16, 2018.

______. 2018b. *Aeronautical Information Services - National Flight Data Center (NFDC) EKA (KEKA) Murray Field, Eureka, CA – United States*. Online: https://nfdc.faa.gov/nfdcApps/services/ajv5/airportDisplay.jsp?airportId=KEKA. Accessed: September 16, 2018.

______. 2018c. *Aeronautical Information Services - National Flight Data Center (NFDC) 033 Samoa Field, Eureka, CA – United States*. Online: https://nfdc.faa.gov/nfdcApps/services/ajv5/airportDisplay.jsp?airportId=O33. Accessed: September 16, 2018.

Humboldt County. 2017a. *Humboldt County General Plan for Areas Outside the Coastal Zone.* Adopted October 23, 2017. Online: https://humboldtgov.org/DocumentCenter/View/61984/Humboldt-County-General-Plan-complete-document-PDF. Accessed: September 6, 2018.

______. 2017b. *Humboldt County General Plan Update – Revised Draft Environmental Impact Report – Chapter 3.5 Transportation*. Online: https://humboldtgov.org/DocumentCenter/View/58834/Section-35-Transportation-Revised-DEIR-PDF. Accessed: September 13, 2018.

Humboldt County Association of Governments (HCAOG). 2017. *HCAOG 20-Year Regional Transportation Plan 2017 Update.* Adopted December 2017. Online:

http://www.hcaog.net/sites/default/files/rtp_maps_appendices_included.pdf. Accessed: September 13, 2018.

_______. 2018a. *Humboldt Bay Area Bike Map – Third Edition 2018*. Online: http://www.hcaog.net/sites/default/files/bike_map_update_2018_map_side_outlines_4_18_18.pdf. Accessed: September 13, 2018.

_______. 2018b. *Humboldt Regional Bicycle Plan Update 2018.* June 2018. Online: http://www.hcaog.net/sites/default/files/final_regional_bike_plan_update_2018.pdf. Accessed: September 13, 2018.

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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 California Public Utilities Commission (CPUC) has exclusive jurisdiction over the siting, design, and construction of the project, the project is not subject to local discretionary regulations. The following summary of local statues and regulations relating to solid waste is provided for informational purposes and to assist with CEQA review.

Humboldt County

There are no county ordinances relevant to the project.

City of Eureka

There are no city ordinances relevant to the project.

3.17.2.2 Methodology

General plans and official websites were reviewed for wastewater collection and treatment, water supply, stormwater drainage, solid waste disposal, electricity, and natural gas service providers for the project area. These providers included the City of Eureka Public Works Department, City of Eureka Community Services Department, Humboldt County Department of Health and Human Services - Division of Environmental Health, Humboldt County Public Works Department, Humboldt Community Services District (HCSD), Humboldt Bay Municipal Water District (HBMWD), Recology Humboldt County, Humboldt Waste Management Authority (HWMA), and Pacific Gas & Electric Company (PG&E).

3.17.3 Environmental Setting

3.17.3.1 Wastewater Collection and Treatment Services

Wastewater treatment in the vicinity of the project alignment is provided by the City of Eureka's Elk River Wastewater Treatment Plant, located on the east side of Humboldt Bay near the mouth of the Elk River. The plant is operated by the City of Eureka Public Works Department. The plant handles wastewater from the City of Eureka and surrounding unincorporated areas of

Humboldt County, for a total population served of approximately 45,000 individuals. The plant was designed to treat an average dry weather flow of 6.0 million gallons per day (MGD), and has a permitted peak wet weather flow capacity of 32.2 MGD (City of Eureka 2014). Properties in more rural areas are served by private septic systems, which are administered by the Humboldt County Division of Environmental Health.

In more rural areas, properties are served by private septic systems, which are permitted by the Humboldt County Department of Health and Human Services - Division of Environmental Health.

3.17.3.2 Water Supply

HCSD and HBMWD deliver potable water to users in the City of Eureka and surrounding portions of unincorporated Humboldt County. The HCSD's service area includes the unincorporated areas east and south of the City of Eureka (including the communities of Myrtletown, Mitchell Heights, Cutten, Pine Hill, Humboldt Hill, and King Salmon). The HBMWD's service area includes the City of Eureka; the HBMWD also provides water to the HCSD. The HBMWD water supply comes from the Mad River in Trinity County, while the HCSD relies on both HBMWD water and three groundwater wells at the base of Humboldt Hill (HCSD 2015; HBMWD 2015). In more rural areas, properties are served by private water wells, which are permitted by the Humboldt County Department of Health and Human Services, Division of Environmental Health.

3.17.3.3 Stormwater Drainage

Stormwater is controlled in the City of Eureka Public Works Department, Stormwater Division. The City's stormwater system is not a part of the sewer system; therefore, stormwater enters receiving waters untreated (City of Eureka 2014). Receiving waters include Humboldt Bay and the surrounding sloughs. The City's storm drain system includes gutter flow, cross street culverts, valley gutters, storm drain inlets and piping, and open channels. These pipes range in size from 8 to 42 inches in diameter. The City of Eureka Public Works Department – Stormwater Division provides stormwater pollution prevention programs for the City.

In unincorporated Humboldt County, some areas surrounding Eureka, such as Cutten, Ridgewood, Pine Hill, and Humboldt Hill, have County-maintained stormwater infrastructure (Humboldt County 2017a). In other areas, stormwater typically sheet flows to the nearest water course or is controlled through on-site private storm drains. The Water Management Division of the Humboldt County Public Works Department implements stormwater pollution prevention programs and facilitates technical assistance for various projects involving water resources in the County.

3.17.3.4 Solid Waste Disposal

The Humboldt County Public Works Department contracts for solid waste collection services with private companies including Arcata Garbage Company, Eel River Disposal Resource and Recovery, Humboldt Sanitation Company, Recology Humboldt County, and Tom's Trash. HWMA operates the transfer station for the disposal of solid waste to landfills located outside the County. HWMA currently contracts with the Potrero Hills Landfill in Suisun City for the disposal of solid waste (Humboldt County 2017c). The Potrero Hills Landfill has a permitted capacity of 83,100,000 cubic yards, and when remaining capacity was last determined on January 1, 2016, there were 13,872,000 cubic yards still available (CalRecycle 2018).

The City of Eureka works with the HWMA to offer recycling and waste diversion programs. The City of Eureka Community Services Department – Recycling/Waste Division contracts with Recology Humboldt County for solid waste collection services.

3.17.3.5 Electricity and Natural Gas

PG&E and Redwood Coast Energy Authority provide electrical power to the City of Eureka and Humboldt County.[1] Approximately half the electricity serving Humboldt County is generated at the 163-megawatt natural gas-fired Humboldt Bay Generating Station (HBGS). Local biomass resources, primarily derived from lumber mill wood residue, provide approximately 25 to 30 percent of the County's electricity needs (Humboldt County 2017b).

Humboldt County imports approximately 90 percent of the natural gas used in the County, while approximately10 percent is produced from fields in the Eel River Valley north of Eureka. Approximately half of the natural gas used in Humboldt County is used at the HBGS to generate electricity. Natural gas and electricity demand over the next 20 years are expected to increase from 0.5 percent per year to 2.5 percent per year (Humboldt County 2017b).

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.

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[1] The City of Eureka and County of Humboldt are members of the Redwood Coast Energy Authority, a local government Joint Powers Agency founded in 2003. The purpose of the Energy Authority is to develop and implement sustainable energy initiatives that reduce energy demand and, increase energy efficiency, and advance the use of clean, efficient and renewable resources available in the region. In May 2017, electricity generation services for residences and businesses were automatically transitioned to RCEA's Community Choice Energy program, providing a choice to use electricity service partially generated from renewable energy, 100 percent generated from renewable energy, or to opt out of the program and remain a customer of PG&E (RCEA 2019).

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 proposed project includes replacing the existing overhead conductor and poles on approximately 7.8 miles of the existing 8.4-mile single-circuit 60 kV power line between Humboldt Bay Substation and Humboldt Substation. As part of the project, approximately 0.6 mile of the adjacent Humboldt Bay-Eureka 60 kV Power Line immediately east of Humboldt Bay Substation will be moved onto four new lattice steel towers shared with the Humboldt Bay-Humboldt #1 60 kV Power Line. The project will reduce the frequency of outages and necessary maintenance and address an existing curtailment issue to reinforce the existing power line system. The operation and maintenance activities required for the reconductored power line will not change from those currently required for the existing power line; thus, no operation-related impacts will occur. Therefore, the impact analysis is focused only on construction activities that are required to install the new conductor and replace existing structures, and establish required access and work areas, as described in Chapter 2, Project Description. For the purposes of the impact analysis, the location of the existing utilities and service systems are considered part of the existing conditions.

PG&E's engineering team has taken into consideration the location of other underground and overhead utilities in designing the project. Additional utility identification will occur in the final design stages. As required by state law, PG&E will notify other utility companies (using Underground Service Alert (USA) North 811) to locate and mark existing underground structures along the proposed alignments 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. Using these surveys and refinements 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.

During the detailed design phase, PG&E will also 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.

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? *No Impact*

A minimal amount of effluent will be generated temporarily by workers during project construction. Because the construction workforce is relatively small, the amount of wastewater generated will be negligible and wastewater treatment requirements will not be exceeded. Therefore, no impact will occur.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? *No Impact*

Project construction will require the temporary and short-term use of water and wastewater facilities by construction workers. 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 at appropriately licensed, off-site facilities. Water will be used for dust control and worker needs. This use will be temporary and short-term and will not require construction of new water and wastewater treatment facilities. The project will not require new or expanded water or wastewater treatment facilities, and existing water and wastewater facilities are sufficient to serve project needs. Therefore, no impact will occur.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? *No Impact*

The project will not require construction of new stormwater drainage facilities or expansion of existing facilities. The project will involve reconductoring of an existing power line, which will not require stormwater drainage facilities. The project will not result in changes to existing stormwater facilities or require the construction of new facilities; therefore, no impact will occur.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? *No Impact*

Potable water will be supplied to construction workers for drinking and will be delivered to project work areas by construction vehicles and equipment. During construction, water will be used for dust control and worker needs, but the existing water supplies will be sufficient to serve the project's needs. Existing off-site water entitlements and resources will be sufficient to accommodate the project's minor temporary and short-term water needs and relatively small number of construction workers. No impact will occur.

e) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? *No Impact*

Portable toilets will be provided for construction workers during construction. Sanitary waste will be disposed at appropriately licensed facilities in the project area that have adequate capacity to accommodate project needs. Therefore, no impact will occur.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? *No Impact*

Construction debris, including removed LDS and wood poles, will be taken on a line truck with a trailer to an area service center for recycling or disposal. Other construction debris will be stored in approved containers on site, and will be hauled away for recycling or disposal periodically during construction. PG&E will conduct a final survey to determine whether cleanup activities have been successfully completed as required.

Removed wood poles will be collected in project-specific containers at a PG&E service center designated as a PG&E consolidation site. Poles will be scheduled for transport to an appropriately licensed Class 1 or composite-lined portion of a solid waste landfill as containers are filled. Chemical Waste Management's Kettlemen Hills Facility is typically used. There is no disposal capacity issue at this facility associated with the treated wood poles generated by this project.

The project will also generate minimal solid waste from the food, glass, paper, plastic, and packing materials consumed by the construction workers. Existing landfills contracted by the HWMA have adequate capacity to accommodate this negligible amount of solid waste. No impact will occur.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste? *No Impact*

All construction debris will be collected and hauled off site for recycling or disposal during construction. PG&E will comply with all federal, state, and local statutes and regulations related to solid waste. Therefore, no impact will occur.

3.17.5 REFERENCES

CalRecycle. 2018. Facility/Site Summary Details: Potrero Hills Landfill (48-AA-0075). Solid Waste Information System available at: https://www2.calrecycle.ca.gov/swfacilities/Directory/48-AA-0075/. Accessed: September 11, 2018.

City of Eureka. 2014. *City of Eureka Municipal Service Review*. Adopted January 15, 2014. Prepared by the Humboldt Local Agency Formation Commission. Available at: http://humboldtlafco.org/wp-content/uploads/Eureka-Adopted-MSR_1-15-14.pdf. Accessed: September 112018.

Humboldt Bay Municipal Water District. 2015. *Humboldt Bay Municipal Water District Urban Water Management Plan 2015.* Adopted June 9, 2016. Available at: https://www.hbmwd.com/files/bd94a9e95/UWMP-2015+June+9%2C+2016+%28Final%29.pdf. Accessed: September 11, 2018.

Humboldt Community Services District. 2015. *2015 Urban Water Management Plan for Humboldt Community Services District Eureka, California*. Prepared by Orrin Piocher and Stan Thiessen of Freshwater Environmental Services. Dated May 20, 2016. Available at: http://humboldtcsd.org/sites/default/files/2015_UWMP_6-10-16.pdf. Accessed: September 11, 2018.

Humboldt County. 2008. Community Infrastructure and Services Technical Report. Prepared by Winzler & Kelly Consulting Engineers. Dated July 2008. Available at: https://humboldtgov.org/DocumentCenter/View/1449/Complete-Document-Community-Infrastructure--Services-Report-PDF. Accessed: September 11, 2018.

______. 2017a. *Humboldt County General Plan – Chapter 11. Water Resources Element.* Adopted October 23, 2017. Available at: https://humboldtgov.org/DocumentCenter/View/61987/Chapter-11-Water-Resources-Element-PDF. Accessed: September 11, 2018.

______. 2017b. *Humboldt County General Plan – Chapter 12. Energy Element*. Adopted October 23, 2017. Available at: https://humboldtgov.org/DocumentCenter/View/61988/Chapter-12-Energy-Element-PDF. Accessed: September 11, 2018.

______. 2017c. *The Authority to Manage our Waste*. Available at: https://humboldtgov.org/DocumentCenter/View/60061/6---The-Authority-to-Manage-Our-Waste. Accessed: September 11, 2018.

Redwood Coast Energy Authority (RCEA). 2019. Available at: https://redwoodenergy.org/. Accessed on January 3, 2019.

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 Humboldt Bay-Humboldt #1 60 kV Reconductoring Project (the 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 between 0.5 miles and two miles of the project construction activities. The projects listed in Table 3.18-2, developed from available information on websites, were included if they had potential environmental impacts, geographic scope and location, and/or timing and duration of implementation similar to those of the project and were not otherwise part of the environmental baseline. 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 were 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 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?	☐	☐	☒	☐
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 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, or substantially reduce the number or restrict the range of an endangered, rare or threatened species. As discussed in Section 3.4, Biological Resources, construction activities may have minor, short-term impacts on species habitat, populations, or communities, resulting in less-than-significant impacts, but none of the minor impacts would result in the level of effects listed in question (a). As summarized in Table 3.4-3: Special-Status Plant Species, 14 special-status plant species initially were considered to have potential to occur in the project area; however, comprehensive surveys for special-status plants were conducted and only one special-status plant species was documented (Lyngbye’s sedge). Most, and likely all, of Lyngbye’s sedge occurrences will be avoided as they are located outside anticipated construction work areas and will be flagged for avoidance pursuant to Applicant Proposed Measure (APM) BIO-7. If Lyngbye's sedge cannot be avoided, the measures in APM BIO-7 will be implemented to ensure that impacts to Lyngbye's sedge are less than significant.

As summarized in Table 3.4-4: Special-Status Fish and Wildlife Species, 22 special-status wildlife species have potential to occur in the project area. Reconnaissance-level surveys for special-status wildlife species were conducted. Four species were determined to be seasonally present in the project area, including chinook salmon (California Coastal ESU), American peregrine falcon, Vaux's swift, and olive-sided flycatcher. Nine special-status species are either present or likely to occur year-round in the project area, including Pacific lamprey, Coho salmon (southern Oregon/northern California coast ESU), steelhead (northern California Coast DPS), coastal cutthroat trout, tidewater goby, northern red-legged frog, western pond turtle, white-tailed kite, and northern harrier. None of the fish species will be directly impacted by project activities because in-water work will not take place in any streams, creeks, or sloughs.

Based on the small amount of suitable habitat present for each species along the project alignment, impact avoidance strategies will be easily implemented to avoid impacts to these species. In addition, PG&E will implement APMs BIO-1 through APM BIO-11 to further reduce less-than-significant impacts.

Likewise, the project will not eliminate important examples of the major periods of California history or prehistory. Cultural resources surveys and records searches identified nine cultural resources within the project area. Eight of these cultural resources have been determined ineligible for listing in either the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR). The archaeological component of one resource, the Spiegelberg Homestead, is assumed eligible for listing, but will be flagged as an avoidance area by construction equipment and personnel to avoid inadvertent impacts. In the unlikely event that historical resources are discovered during construction activities, APM CUL-3 will be implemented to ensure that the project will not eliminate important examples of major periods of California history or prehistory.

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 project has been designed to reduce future impacts to wetlands and related biological resources. The 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 for each resource area is presented in Section 3.18.5, Cumulative

Impacts Analysis. The project will contribute incrementally to cumulative impacts in the project area related to aesthetics, air quality, biological resources, cultural and paleontological resources, geology and soils, greenhouse gas (GHG) emissions, hazardous materials, noise, recreation, traffic, and water quality; however, the project will not contribute substantially to those cumulative impacts. Thus, the project will not have environmental effects that are individually limited but cumulatively considerable. Therefore, the impact will be less than significant.

d) Would the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? *Less-than-Significant 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, potential for wildland fires, and temporary air quality impacts. As discussed previously, construction impacts associated with air quality, wildland fires, and hazards and hazardous materials will be less than significant. In addition, completing necessary maintenance on this existing utility line will reduce the potential risk of wildland fires. 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 and strengthening the physical infrastructure. Therefore, the impact will be less than significant.

3.18.3 CUMULATIVE IMPACTS

Projects included in the cumulative impact assessment were identified using a list approach (CEQA Guidelines Section 15130[b][1][A]), including all pending development projects within an approximate 2-mile radius. This area includes portions of unincorporated Humboldt County and the City of Eureka. Table 3.18-2: Cumulative Projects in the Project Vicinity below summarizes these pending development projects.

3.18.4 KEY PROJECTS IN THE PROJECT VICINITY

Construction of the project is tentatively scheduled to begin in spring 2022, with an approximate 6-8 month construction period ending in winter 2022. Review of CEQANet, state, county, and local government agency websites identified several anticipated future projects that will potentially be under construction at the same time as and in the vicinity of the project area. Additionally, several routine PG&E projects are anticipated to be ongoing. Table 3.18-2 lists the projects that are reasonably foreseeable within two miles of the project. These projects may overlap with its construction timeline. Therefore, additional information is provided below the table regarding the timeline and status of these projects.

Table 3.18-2: Cumulative Projects in the Project Vicinity

Project (Project Proponent)	Description	Distance to Project
Humboldt Bay Power Plant Decommissioning (PG&E)	Decommissioning and site restoration activities at the PG&E Humboldt Bay Power Plant (nuclear generating unit).	Adjacent
Martin Slough Enhancement (California State Coastal Conservancy)	Project to restore and enhance wetlands, water quality, and fish and wildlife habitat in and adjacent to Martin Slough.	Adjacent

Project (Project Proponent)	Description	Distance to Project
Elk River Estuary/Inter-tidal Wetlands Enhancement and Coastal Access Project (City of Eureka)	Project to restore and enhance estuary and inter-tidal wetland habitats on approximately 114 acres adjacent to Elk River.	0.88 miles
Sequoia Park Zoo Renovation and Expansion (City of Eureka)	Project to renovate and add new exhibits within the existing footprint of the Zoo and expand the footprint of the Zoo to accommodate new exhibits.	1,400 feet

3.18.4.1 Humboldt Bay Generating Station (PG&E)

The Humboldt Bay Power Plant (HBPP) included two conventional generating units and one nuclear-powered generating unit. PG&E began decommissioning the HBPP in 2009. Ongoing decommissioning activities and associated site restoration activities are expected to continue until 2020, several years after the closure of the nuclear generating unit. These activities will occur adjacent to the western end of the project area.

3.18.4.2 Martin Slough Enhancement (California Coastal Conservancy)

This project, undertaken by the California Coastal Conservancy, aims to restore and enhance wetlands, water quality, and fish and wildlife habitat in and adjacent to Martin Slough, while reducing flooding of the agricultural and recreation lands both in and adjacent to the restoration project area. Martin Slough is a tributary of the Elk River, which drains to Humboldt Bay and provides anadromous fish habitat and other aquatic and riparian services. This project started in 2014 and is scheduled to be completed in six phases, depending on budget and resources. In June of 2017, staff from the California Coastal Conservancy recommended an additional $1.73 million dollars be disbursed to this project effort, for a total project cost of over $6.46 million dollars. The project will include work on three PG&E natural gas lines: relocation of 130 feet of a 6-inch natural gas line, de-commissioning of a 4-inch gas line, and installation of scour protection over a 12-inch gas line. Poles along the project alignment are outside the restoration property, although a portion of the existing alignment crosses the Martin Slough property. Access to one of the pole replacements on the south side of Martin Slough will be via an existing dirt road across the restoration property.

3.18.4.3 Elk River Estuary/Inter-tidal Wetlands Enhancement Project (City of Eureka)

The City of Eureka aims to restore and enhance estuary and inter-tidal wetland habitats on approximately 114 acres adjacent to the Elk River in two areas. This restoration would include 78 acres of salt marsh, 13 acres of riparian habitat, and 13 acres of inter-tidal channels (City of Eureka 2017a). To allow pedestrian access to Elk River and Humboldt Bay, the enhancement project would include a one-mile extension of the Class 1 Americans with Disabilities Act (ADA) Waterfront Trail, the construction of a non-motorized boat launch, causeways, viewing platforms, and trailhead parking. The project is located adjacent to Humboldt Bay, and is approximately 0.88 miles west of the project area. Due to the potential for biological impacts, the project is slated to be constructed between July 1 and October 31. It is unclear exactly which year construction will begin, as it depends on the ability to secure funding.

3.18.4.4 Sequoia Park Zoo Expansion and Renovation (City of Eureka)

The City of Eureka aims to renovate and add new exhibits within the existing footprint of the Sequoia Park Zoo and expand the footprint of the zoo to accommodate new exhibits. An additional approximately 0.25 acres of new impervious surface area for new facilities and exhibits will be added to the zoo City of Eureka 2017b). Construction is anticipated to begin in 2019 and be completed within five years. The zoo is approximately 1,400 feet north of the project alignment.

3.18.5 ANALYSIS OF CUMULATIVE IMPACTS

The project includes the reconductoring of approximately 7.8 miles of the existing Humboldt Bay-Humboldt #1 60 kV Power Line and approximately 0.6 mile of the Humboldt Bay-Eureka 60 kV Power Line. The operation and maintenance activities required for the reconductored power lines will not change from those currently required for the existing power line; thus, no long-term impacts will occur. The only long-term, continuing impact of the project will be the incremental aesthetic impact associated with the installation of additional TSPs and LSTs, replacing more-numerous existing wood and steel poles in the same corridor, which will be less than significant.

Any future projects that may occur in the same time and place as the proposed project will be required to adhere to the terms of encroachment and other permits, which combined with the project's implementation of APMs and adherence to the terms of the encroachment permits, will ensure that cumulative impacts will be less than significant.

As described in Chapter 3.0, Environmental Impact Assessment, for agricultural and forest resources, land use and planning, mineral resources, population and housing, public services, and utilities and public services, either the project has no impacts or the impacts are so minor they would have no contribution to cumulative impacts in the project area.

Implementation of APMs will further minimize less-than-significant, short-term construction impacts related to aesthetics, air quality, biological resources, cultural and paleontological resources, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, noise, recreation, and transportation and traffic. A discussion regarding each relevant resource area is provided below.

Aesthetics: All potential impacts related to aesthetics will be less than significant. The project includes reconductoring and replacing poles on existing lines. Through the visual simulation process, it was determined that construction-related activities, including installation of replacement structures and new conductors and the removal of existing structures (as outlined in Chapter 2.0, Project Description), will not substantially degrade the existing visual character or quality of the project area and its surroundings. Construction-related visual impacts will result from the temporary presence of workers, construction equipment, and vehicles along the project route. 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.

Air Quality: All potential impacts related to air quality will be less than significant with implementation of the APMs described in Section 3.3, Air Quality. The average daily emissions associated with construction activities will not exceed any construction-related thresholds of significance; thus, the project will not conflict with any air quality plan. Although Humboldt County, where the project is located, is in non-attainment of the State ambient air quality standard for PM_{10}, construction emissions will not violate any air quality standard or contribute substantially to an existing or project-related air quality violation. All criteria air pollutant emissions will be below the significance thresholds and impacts will be less than significant. Construction will be short term, generally lasting a few days at each pole. Implementation of APM AQ-1 and APM GHG-1, which include controlling fugitive dust and reducing idling time, will reduce exposure of sensitive receptors to emissions and odors. 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.

Biological Resources: All potential impacts related to biological resources will be less than significant with implementation of the APMs described in Section 3.4, Biological Resources. Implementation of APM BIO-1 through APM BIO-5 and APM BIO-7 will minimize impacts to special-status plants. Because of the short duration of construction activities and relatively small areas used for staging, construction, and access, terrestrial animals will be able to move freely around temporary construction work areas. No in-water work will take place in any streams, creeks, or sloughs. Further, implementation of APM BIO 1 through APM BIO-6 and APM BIO-8 through APM BIO-11 will further minimize impacts to wildlife and biological resources, including wetlands. It is anticipated that other projects would be subject to similar protection measures. The project will not conflict with any local policies or ordinances protecting biological resources, nor will it conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state plan. Therefore, the project’s impacts will not be cumulatively considerable, even if other projects occur in the project vicinity. The project will not contribute substantially to any overall cumulative impacts on biological resources.

Cultural and Paleontological Resources: All potential impacts related to cultural and paleontological resources will be less than significant or nonexistent with implementation of the APMs described in Section 3.5, Cultural and Paleontological Resources. Eight of the nine cultural resources identified in the project area have been determined to be ineligible for listing in either the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR). The archaeological component of one resource, the Spiegelberg Homestead, is assumed eligible for listing, but will be flagged as an avoidance area by construction equipment and personnel to avoid inadvertent impacts according to APM CUL-2. No human remains were identified within the project area. APM CUL-1 and APM CUL-3 will reduce the risk of potential for damage or destruction of any inadvertently discovered buried cultural resources or remains, and implementation of APMs PALEO-1 and PALEO-2 will provide similar protection and recovery for paleontological resources. Although Pleistocene-aged vertebrate fossils that have been found within 500 feet of project components, the small-diameter augering required to replace existing poles in these areas is unlikely to result in the recovery of scientifically significant fossils. With implementation APMs, the project will not contribute substantially to any cumulative impacts on cultural and paleontological resources.

Geology and Soils: All potential impacts related to geology and soils will be less than significant or nonexistent with implementation of the APMs described in Section 3.6, Geology and Soils. Replacing the wires and structures along the existing power line will not increase the risk of loss, injury, or death from geologic hazards. There is a low probability for landslides in the project area because of the relatively flat topography and the lack of geomorphic features. Replacement of existing wood and LDS poles with TSPs, LSTs, wood poles, and LDS poles will require excavations, some of which will occur in soils on slopes that have a moderate to high wind and/or water erosion potential. In addition, grading and/or scraping and vegetation clearing may be required for structure installation or removal and work area and helicopter landing zone establishment. Because of the limited extent of earth-moving activities and the limited scope of construction activities, substantial erosion or loss of topsoil is not expected to occur. Standard construction practices will be used to mitigate hazardous soil conditions, if encountered. Therefore, 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 in the area.

Greenhouse Gas Emissions: GHG emissions will not result in a significant impact as described in Section 3.7, Greenhouse Gas Emissions. Construction of the project will generate GHG emissions from land-based construction equipment and helicopters over the project's 6-8 month construction schedule. Following project completion, all construction emissions will cease. The project will not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. The GHG emissions generated by the project will not be cumulatively considerable and will not significantly contribute to global climate change. APM GHG-1 will further reduce impacts.

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 and will not be cumulatively considerable. During construction activities, there is an increased potential for accidental release of fluids from a vehicle or motorized piece of equipment. Any impacts associated with such an accidental release will be reduced to a less-than-significant level by implementation of APMs. The implementation of PG&E's standard hazardous substance control, emergency response, and health and safety procedures will further minimize less-than-significant impacts.

The impacts of the proposed project related to hazards or hazardous materials are not individually significant and cumulative effects of this and other related excavation projects will not be cumulatively considerable because each project must similarly follow the applicable federal and state rules and regulations required to ensure that no substantial impacts occur.

Hydrology and Water Quality: All potential impacts related to hydrology and water quality will be less than significant or nonexistent with implementation of the APMs described in Section 3.9, Hydrology and Water Quality. While construction activities will not require in-water work in streams, creeks, or sloughs, construction activities have the potential to affect water quality through increased erosion from ground movement and vegetation clearing, increased erosion from vehicles using matting, installation of foundations for TSPs and LSTs that require excavations in wetlands and areas of shallow groundwater, discharge of untreated water from construction dewatering operations, concrete installation for tower foundations, and the potential release of fuels and other construction-equipment hazardous materials near waters.

The APMs, detailed in Section 3.9, include construction stormwater pollution prevention plan preparation/implementation and spill prevention and response measures, among others. With implementation of these measures, the project will not have cumulatively considerable impacts on hydrology and water quality.

Noise: All potential impacts related to noise will be less than significant or nonexistent as described in Section 3.12, Noise, and will not be cumulatively considerable. 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 compatible with local noise ordinances. Any overlaps with other area construction will be brief, and other construction will also be consistent with local noise ordinances. Unplanned nighttime work will be infrequent, occur in limited locations, and be short-term. Implementation of APM NOI-1 through APM NOI-3 will minimize noise during project construction, even when considered along with any other nearby project that might have overlapping construction periods. Short-term construction noise impacts are unlikely to be exacerbated by other construction projects in the area.

Recreation: All potential impacts related to recreation will be less than significant or nonexistent as described in Section 3.15, Recreation. Although the project will not result in physical deterioration of any parks, construction activities may result in short-term closure of multi-use trails within the McKay Community Forest (should the planned trails be open by the time of construction), and the use of portions of peripheral areas at Redwood Fields Ballparks and Redwood Acres Fairgrounds. Any closures required for public safety during construction will be temporary and short-term and will not be cumulatively considerable. These minor impacts are unlikely to be exacerbated in any material way by other construction projects in the immediate area. PG&E will coordinate any closures with park operators to minimize impacts to users per APM REC-01. Therefore, the project will not contribute significantly to cumulative impacts to recreation.

Transportation and Traffic: All potential impacts related to transportation and traffic will be less than significant with implementation of the APMs described in Section 3.16, Transportation and Traffic. The movement of construction vehicles along public roads and the temporary closure of traffic lanes and roadways during pole and conductor replacement along existing roads may result in temporary, short-term traffic impacts related to truck routes and project area access routes. Traffic controls and other safety measures will be put in place to maintain proper traffic flow on both local and regional roadways during temporary construction activities. Other construction projects will follow similar measures. Any effect on the operations of roadways or the overall circulation system at any given location along the route will be minimal.

Guard structures or specially equipped bucket trucks will be employed where the project alignment crosses over public roads, such as Highway 101, to allow traffic to safely use the road while PG&E removes the existing conductor and pulls the new conductor into place.

Helicopters will be used, in addition to ground equipment, to remove and install poles and structures to minimize ground disturbance. PG&E will prepare a Helicopter Use Plan, which will identify the anticipated landing zones, flight paths, and general helicopter operation procedures and will be submitted separately to CPUC staff.

The project will have short-term impacts on public transit, bicycle, and pedestrian facilities. Project construction could require the temporary relocation of two Eureka Transit Service bus stops and will require temporary lane closures in the immediate vicinity of these bus stops. These minor and temporary effects are unlikely to be exacerbated in any material way by other construction projects in the immediate area. If any projects occur at the same time and place as PG&E's construction, local encroachment permit conditions will apply to both projects ensuring that project impacts on transportation and traffic will not be cumulatively considerable.

3.18.6 References

City of Eureka. 2017a. *Initial Study and Mitigated Negative Declaration. Elk River Estuary/Inter-tidal Wetlands Enhancement and Coastal Access Projec*t. Online: http://humboldtbay.org/sites/humboldtbay2.org/files/documents/Eureka_Elk%20R%20Enhance%20Acc%20IS-MND%2008%2014%2017%20combined_reduced.pdf. Accessed August 2, 2018.

_____. 2017b. *Initial Study and Mitigated Negative Declaration. Sequoia Park Zoo Expansion and Renovation*. http://www.ci.eureka.ca.gov/civicax/filebank/blobdload.aspx?BlobID=13493. Accessed January 28, 2019.

Pacific Gas and Electric Company (PG&E). 2016. *Humboldt Bay Power Plant Decommissioning Program Final Site Restoration Plan Implementation*. Online: http://humboldtbay.org/sites/humboldtbay2.org/files/HBPP%20Final%20Site%20Restoration%20-%20Initial%20Study.pdf. Accessed August 2, 2018.

State Coastal Conservancy. 2017. *Staff Recommendation June 15, 2017*. Martin Slough Enhancement. Online: http://scc.ca.gov/webmaster/ftp/pdf/sccbb/2017/1706/20170615Board05_Martin_Slough_Enhancement.pdf. Accessed August 2, 2018.

APPENDICES

APPENDIX A: AFFECTED PROPERTIES WITHIN 300 FEET

Affected Properties within 300 Feet

APN	Address	City	State	Zip
018-271-003-000	3956 JACOBS AVE	EUREKA	CA	95501
910-000-165-000				
305-101-049-000	1909 ROTH CT	EUREKA	CA	95503
302-151-009-000	895 PINE HILL RD	EUREKA	CA	95503-9621
302-151-010-000	851 PINE HILL RD	EUREKA	CA	95503-9621
019-071-026-000	1840 MYRTLE AVE	EUREKA	CA	95501-1446
019-071-003-000	28420 HUNTER CREEK HTS	GOLD BEACH	OR	97444-9668
301-201-006-000	5658 COUNTRY LN	EUREKA	CA	95503-6470
019-031-002-000	4255 UNION ST	EUREKA	CA	95503-5943
301-201-014-000	510 VALLEY VIEW DR	EUREKA	CA	95503-6462
910-001-277-000	5 SUNSHINE WAY	EUREKA	CA	95503-7408
018-281-003-000	63 GARIBALDI WAY	HENDERSON	NV	89011-2502
018-051-007-000	1260 MORNINGSIDE DR	SUNNYVALE	CA	94087-1554
910-001-290-000	18 SUNSHINE WAY	EUREKA	CA	95503-7409
910-001-282-000	10 SUNSHINE WAY	EUREKA	CA	95503-7408
305-051-013-000	4283 CENTRAL AVE	MCKINLEYVILLE	CA	95519-9417
910-001-337-000	66 SUNSHINE WAY	EUREKA	CA	95503-7417
301-201-009-000	5681 COUNTRY LN	EUREKA	CA	95503-6450
910-001-338-000	67 SUNSHINE WAY	EUREKA	CA	95503-7417
910-001-339-000	68 SUNSHINE WAY	EUREKA	CA	95503-7417
910-000-162-000				
910-000-163-000				
305-101-014-000	33105 SANTIAGO RD #118	ACTON	CA	93510-1883
018-051-008-000	4009 CEDAR ST	EUREKA	CA	95503-6250
018-041-029-000	2480 REDWOOD ST	EUREKA	CA	95503-6243
305-101-047-000	PO BOX 5388	EUREKA	CA	95502-5388
018-051-013-000	2450 FERN ST	EUREKA	CA	95503-6253
018-041-035-000	1812 HODGSON ST	EUREKA	CA	95503-5515
018-041-010-000	602 HARVARD CT	WOODLAND	CA	95695-5016
301-221-001-000	PO BOX 398	BAYSIDE	CA	95524
017-073-009-000	1653 MYRTLE AVE	EUREKA	CA	95501-1458
017-072-003-000	1653 MYRTLE AVE	EUREKA	CA	95501-1458
018-041-034-000	3927 CROSS LN	EUREKA	CA	95503-6273
910-001-280-000	8 SUNSHINE WAY	EUREKA	CA	95503-7408
305-121-004-000	5829 HUMBOLDT HILL RD	EUREKA	CA	95503-7011
019-061-002-000	PO BOX 834	EUREKA	CA	95502
018-041-011-000	2240 FERN ST	EUREKA	CA	95503-6200
018-051-026-000	4057 CEDAR ST	EUREKA	CA	95503-6250
018-041-024-000	3973 CEDAR ST	EUREKA	CA	95503-7614
301-211-006-000	PO BOX 398	BAYSIDE	CA	95524
018-041-040-000	1821 S BASCOM AVE #105	CAMPBELL	CA	95008-2309
304-181-002-000	2950 E ST C	EUREKA	CA	95501-4300
018-041-047-000	PO BOX 6433	EUREKA	CA	95502-6433
304-181-004-000	5497 ELK RIVER RD	EUREKA	CA	95503-9667
305-051-032-000	297 VALLEY AVE	FORTUNA	CA	95540-9780

APN	Address	City	State	Zip
301-201-017-000	510 VALLEY VIEW DR	EUREKA	CA	95503-6462
301-201-015-000	510 VALLEY VIEW DR	EUREKA	CA	95503-6462
910-001-288-000	16 SUNSHINE WAY	EUREKA	CA	95503-7408
018-041-031-000	3975 HARRISON AVE #1	EUREKA	CA	95503-8934
910-001-340-000	69 SUNSHINE WAY	EUREKA	CA	95503-7417
301-201-007-000	824 PINE HILL RD	EUREKA	CA	95503-9689
910-001-336-000	65 SUNSHINE WAY	EUREKA	CA	95503-7417
305-101-043-000	115 REDMOND RD	EUREKA	CA	95503-9590
305-101-041-000	6820 LINDA RD	EUREKA	CA	95503-7148
017-071-004-000	1589 MYRTLE AVE	EUREKA	CA	95501-1453
018-041-008-000	2453 FERN ST	EUREKA	CA	95503-6252
305-021-008-000	2950 E ST C	EUREKA	CA	95501-4300
018-051-025-000	4045 CEDAR ST	EUREKA	CA	95503-6250
910-001-286-000	14 SUNSHINE WAY	EUREKA	CA	95503-7408
304-181-005-000	2950 E ST C	EUREKA	CA	95501-4300
305-101-045-000	PO BOX 5388	EUREKA	CA	95502-5388
910-001-335-000	64 SUNSHINE WAY	EUREKA	CA	95503-7416
910-001-333-000	PO BOX 740	EUREKA	CA	95502
018-051-028-000	PO BOX 182	ARCATA	CA	95518
305-101-050-000	PO BOX 6789	EUREKA	CA	95502-6789
910-001-331-000	60 SUNSHINE WAY	EUREKA	CA	95503-7416
910-001-334-000	63 SUNSHINE WAY	EUREKA	CA	95503-7416
910-001-279-000	7 SUNSHINE WAY	EUREKA	CA	95503-7408
018-041-021-000	PO BOX 276	CUTTEN	CA	95534
910-000-164-000				
017-073-007-000	1653 MYRTLE AVE	EUREKA	CA	95501-1458
018-041-009-000	PO BOX 344	CUTTEN	CA	95534
019-031-004-000	PO BOX 714	BAYSIDE	CA	95524
018-051-009-000	PO BOX 188	CUTTEN	CA	95534
018-011-014-000	PO BOX 825	LOYALTON	CA	96118
019-061-005-000	69 PAMELA LN	BAYSIDE	CA	95524-9354
305-101-046-000	PO BOX 5388	EUREKA	CA	95502-5388
018-041-045-000	PO BOX 459	MIRANDA	CA	95553
305-041-031-000	PO BOX 996	UKIAH	CA	95482
301-211-007-000	PO BOX 398	BAYSIDE	CA	95524
304-151-005-000	5555 ELK RIVER RD	EUREKA	CA	95503-9667
305-041-051-000	PO BOX 6514	EUREKA	CA	95502-6514
304-191-002-000	2950 E ST C	EUREKA	CA	95501-4300
302-161-003-000	PO BOX 398	BAYSIDE	CA	95524
019-031-003-000	4255 UNION ST	EUREKA	CA	95503-5943
305-121-005-000	PO BOX 6514	EUREKA	CA	95502-6514
018-011-015-000	2485 REDWOOD ST	EUREKA	CA	95503-6264
305-031-001-000	PO BOX 6514	EUREKA	CA	95502-6514
304-201-001-000	PO BOX 6514	EUREKA	CA	95502-6514
304-181-001-000	PO BOX 6514	EUREKA	CA	95502-6514
305-031-012-000	PO BOX 6514	EUREKA	CA	95502-6514
305-031-013-000	PO BOX 6514	EUREKA	CA	95502-6514

APN	Address	City	State	Zip
305-021-003-000	PO BOX 23	EUREKA	CA	95502
018-051-029-000	1913 S QUARRY RD	BAYSIDE	CA	95524
304-191-001-000	PO BOX 23	EUREKA	CA	95502
305-121-007-000	PO BOX 996	UKIAH	CA	95482
305-051-035-000	5959 HUMBOLDT HILL RD	EUREKA	CA	95503-7034
305-051-001-000	PO BOX 6264	EUREKA	CA	95502-6264
304-171-002-000	2950 E ST C	EUREKA	CA	95501-4300
305-041-052-000	PO BOX 6514	EUREKA	CA	95502-6514
301-201-008-000	824 PINE HILL RD	EUREKA	CA	95503-9689
018-041-038-000	3941 CEDAR ST	EUREKA	CA	95503-6248
018-041-022-000	PO BOX 276	CUTTEN	CA	95534
302-151-011-000	531 K ST	EUREKA	CA	95501-1146
019-071-007-000	913 CAPRI DR	CAMPBELL	CA	95008-6044
305-101-044-000	2031 EICH RD	EUREKA	CA	95503-6909
305-101-052-000	2031 EICH RD	EUREKA	CA	95503-6909
018-041-046-000	PO BOX 6433	EUREKA	CA	95502-6433
018-041-048-000	3100 MAIN ST	EUREKA	CA	95503-9704
018-041-016-000	485 E CALIFORNIA AVE	ARCATA	CA	95521-5277
305-101-048-000	PO BOX 5388	EUREKA	CA	95502-5388
018-041-030-000	1457 MARSH ST #100	SAN LUIS OBISPO	CA	93401-2993
305-031-006-000	PO BOX 996	UKIAH	CA	95482
304-171-001-000	2950 E ST C	EUREKA	CA	95501-4300
017-072-002-000	1589 MYRTLE AVE	EUREKA	CA	95501-1453
017-071-009-000	1589 MYRTLE AVE	EUREKA	CA	95501-1453
305-041-030-000	PO BOX 6514	EUREKA	CA	95502-6514
305-021-009-000	2950 E ST C	EUREKA	CA	95501-4300
305-051-002-000	6135 PRYOR ST	EUREKA	CA	95503-7308
019-071-010-000	4316 UNION ST	EUREKA	CA	95503-5945
017-073-008-000	PO BOX 327	CUTTEN	CA	95534
017-073-010-000	PO BOX 327	CUTTEN	CA	95534
019-071-025-000	301 L ST	EUREKA	CA	95501
301-201-010-000	510 VALLEY VIEW DR	EUREKA	CA	95503-6462
305-073-004-000	PO BOX 394	LOLETA	CA	95551
019-031-002-000	4255 UNION ST	EUREKA	CA	95503-5943
018-181-003-000	3225 LONGFELLOW BLVD	SAINT LOUIS	MO	63104-1626
011-232-002-000	PO BOX 6610	EUREKA	CA	95502-6610
018-101-015-000	PO BOX 6610	EUREKA	CA	95502-6610
305-073-003-000	PO BOX 394	LOLETA	CA	95551
305-073-056-000	1251 KING SALMON AVE	EUREKA	CA	95503-6822
305-073-054-000	611 S PALM CANYON DR #7067	PALM SPRINGS	CA	92264-7213
017-173-002-000	677 MARIAH DR	YUBA CITY	CA	95991-7571
305-073-057-000	1251 KING SALMON AVE	EUREKA	CA	95503-6822
306-013-001-000	1131 CEDAR DR	ARCATA	CA	95521-4673
305-073-058-000	PO BOX 394	LOLETA	CA	95551
306-013-009-000	PO BOX 517	FORTUNA	CA	95540
305-073-053-000	611 S PALM CANYON DR #7067	PALM SPRINGS	CA	92264-7213
018-181-025-000	3225 LONGFELLOW BLVD	SAINT LOUIS	MO	63104-1626

APN	Address	City	State	Zip
018-101-003-000	PO BOX 6610	EUREKA	CA	95502-6610
011-231-007-000	3660 J ST	EUREKA	CA	95503-5421
019-031-003-000	4255 UNION ST	EUREKA	CA	95503-5943
018-281-003-000	63 GARIBALDI WAY	HENDERSON	NV	89011-2502
017-172-049-000	3199 MITCHELL RD	EUREKA	CA	95503-9784
017-172-017-000	3088 MAIN ST	EUREKA	CA	95503-9704
305-073-017-000	PO BOX 225	EUREKA	CA	95502
305-073-006-000	2831 S CAROLINA ST	SAN PEDRO	CA	90731-6617
305-073-016-000	435 BLUE BLOSSOM LN	EUREKA	CA	95503-9540
018-101-002-000	3225 LONGFELLOW BLVD	SAINT LOUIS	MO	63104-1626
012-111-002-000	1316 MADRONE AVE	EUREKA	CA	95503-5558
012-261-006-000	3641 O ST	EUREKA	CA	95503-5521
011-231-006-000	3650 J ST	EUREKA	CA	95503-5421
018-101-008-000	3678 J ST	EUREKA	CA	95503-5421
018-111-015-000	3760 J ST	EUREKA	CA	95503-5422
019-021-012-000	3945 TESS CT	EUREKA	CA	95503-5172
019-021-032-000	3955 TESS CT	EUREKA	CA	95503-5172
011-231-004-000	3660 J ST	EUREKA	CA	95503-5421
018-111-013-000	1055 VISTA DR	EUREKA	CA	95503-6053
017-172-039-000	PO BOX 4711	ARCATA	CA	95518-4711
305-073-008-000	1229 KING SALMON AVE	EUREKA	CA	95503-6822
306-016-007-000	358 E J ST	CHULA VISTA	CA	91910-6251
017-172-026-000	3076 MAIN ST	EUREKA	CA	95503-9704
019-021-031-000	3950 TESS CT	EUREKA	CA	95503-5172
017-172-046-000	3050 MAIN ST	EUREKA	CA	95503-9704
306-013-008-000	PO BOX 285	FIELDS LANDING	CA	95537
012-111-016-000	1330 MADRONE AVE	EUREKA	CA	95503-5558
018-181-002-000	3684 J ST	EUREKA	CA	95503-5421
305-073-015-000	1179 KING SALMON AVE	EUREKA	CA	95503-6821
305-073-012-000	115 REDMOND RD	EUREKA	CA	95503-9590
305-073-014-000	1179 KING SALMON AVE	EUREKA	CA	95503-6821
305-073-059-000	11725 WILDER RD	RED BLUFF	CA	96080-7780
305-073-005-000	1251 KING SALMON AVE	EUREKA	CA	95503-6822
017-172-050-000	3100 MAIN ST	EUREKA	CA	95503-9704
305-073-007-000	7625 FORD LN	EUREKA	CA	95503-9626
017-172-040-000	3002 MAIN ST	EUREKA	CA	95503-9704
306-016-002-000	253 QUAIL VALLEY RD	EUREKA	CA	95503-9531
012-111-013-000	3630 O ST	EUREKA	CA	95503-5522
018-271-003-000	3956 JACOBS AVE	EUREKA	CA	95501
305-073-013-000	1201 KING SALMON AVE	EUREKA	CA	95503-6822
017-172-038-000	2930 MAIN ST	EUREKA	CA	95503-9704
305-073-060-000	2934 ROSS CREEK CT	REDDING	CA	96002-5175
018-181-022-000	2177 MEADOWWOOD LN	EUREKA	CA	95503-6734
305-041-031-000	PO BOX 996	UKIAH	CA	95482
305-041-030-000	PO BOX 6514	EUREKA	CA	95502-6514
305-121-005-000	PO BOX 6514	EUREKA	CA	95502-6514
305-041-052-000	PO BOX 6514	EUREKA	CA	95502-6514

APN	Address	City	State	Zip
304-181-004-000	5497 ELK RIVER RD	EUREKA	CA	95503-9667
304-151-005-000	5555 ELK RIVER RD	EUREKA	CA	95503-9667
017-164-003-000	195 KLUCK LN	EUREKA	CA	95503-9717
017-221-001-000	195 KLUCK LN	EUREKA	CA	95503-9717
305-041-051-000	PO BOX 6514	EUREKA	CA	95502-6514
305-171-015-000	PO BOX 149	FORTUNA	CA	95540
305-073-020-000	PO BOX 724	EUREKA	CA	95502
305-073-078-000	PO BOX 724	EUREKA	CA	95502
305-073-080-000	PO BOX 724	EUREKA	CA	95502
305-073-019-000	PO BOX 724	EUREKA	CA	95502
305-021-009-000	2950 E ST C	EUREKA	CA	95501-4300
017-173-003-000	825 5TH ST #111	EUREKA	CA	95501-1107
305-131-036-000	PO BOX 1030	EUREKA	CA	95502-1030
017-164-002-000	825 5TH ST #111	EUREKA	CA	95501-1107
017-182-010-000	4569 PACIFIC LN	EUREKA	CA	95503-9716
306-211-004-000	PO BOX 149	FORTUNA	CA	95540
017-182-012-000	4569 PACIFIC LN	EUREKA	CA	95503-9716
017-182-011-000	4569 PACIFIC LN	EUREKA	CA	95503-9716
305-201-009-000	PO BOX 149	FORTUNA	CA	95540
305-201-017-000	PO BOX 517	FORTUNA	CA	95540
305-201-002-000	PO BOX 149	FORTUNA	CA	95540
305-201-016-000	PO BOX 149	FORTUNA	CA	95540
305-201-003-000	PO BOX 28	CUTTEN	CA	95534
305-073-023-000	1336 4TH ST	EUREKA	CA	95501
305-141-005-000	PO BOX 1030	EUREKA	CA	95502-1030
305-171-016-000				
306-013-010-000	PO BOX 149	FORTUNA	CA	95540
017-163-009-000	PO BOX 6859	EUREKA	CA	95502-6859
018-101-011-000	3225 LONGFELLOW BLVD	SAINT LOUIS	MO	63104-1626
305-073-011-000	1213 KING SALMON AVE	EUREKA	CA	95503-6822
305-073-009-000	1229 KING SALMON AVE	EUREKA	CA	95503-6822
011-231-008-000	1515 BUHNE ST	EUREKA	CA	95501-4254
012-261-005-000	3651 O ST	EUREKA	CA	95503-5521
306-016-006-000	358 E J ST	CHULA VISTA	CA	91910-6251
018-091-007-000	533 E ST	EUREKA	CA	95501
018-381-001-000	PO BOX 6610	EUREKA	CA	95502-6610
305-073-010-000	1215 KING SALMON AVE	EUREKA	CA	95503-6822
018-101-009-000	3684 J ST	EUREKA	CA	95503-5421
305-073-018-000	PO BOX 724	EUREKA	CA	95502
012-111-014-000	1330 MADRONE AVE	EUREKA	CA	95503-5558
305-073-055-000	611 S PALM CANYON DR #7067	PALM SPRINGS	CA	92264-7213
018-101-020-000	PO BOX 6610	EUREKA	CA	95502-6610
018-111-016-000	3760 J ST	EUREKA	CA	95503-5422
017-172-047-000	149 REDMOND RD	EUREKA	CA	95503-9590
017-172-037-000	2930 MAIN ST	EUREKA	CA	95503-9704
306-013-007-000	PO BOX 294	FIELDS LANDING	CA	95537
018-091-005-000	1650 HEMLOCK ST	EUREKA	CA	95503-5511

APN	Address	City	State	Zip
301-041-005-000	101 Higgins St	Eureka	CA	95503-5926
301-041-038-000	38181 Hastings Ct	Fremont	CA	94536-5224
301-131-002-000	Po Box 161	Loleta	CA	95551
910-001-335-000	64 Sunshine Way	Eureka	CA	95503-7416
301-162-030-000	514 Ryan Ct	Eureka	CA	95503-6476
018-183-007-000	Po Box 804	Eureka	CA	95502
018-202-023-000	Po Box 2421	Weaverville	CA	96093-2421
018-021-009-000	Po Box 188	Cutten	CA	95534
301-091-031-000	4869 Hidden Meadows Ln	Eureka	CA	95503-5918
301-082-042-000	4871 Allen Ct	Eureka	CA	95503-5901
301-082-076-000	4846 Starlund Ct	Eureka	CA	95503-1315
301-041-027-000	4775 Little California St	Eureka	CA	95503-5920
301-171-009-000	806 Masterson Pl	Eureka	CA	95503-6334
018-371-011-000	1979 Roth Ct	Eureka	CA	95503
301-082-049-000	4800 Allen Ct	Eureka	CA	95503-5902
301-162-010-000	517 Ryan Ct	Eureka	CA	95503-6476
018-341-014-000	1131 Vista Dr	Eureka	CA	95503-6017
018-041-002-000	4937 Lundblade Dr	Eureka	CA	95503-6487
301-072-012-000	3342 K St	Eureka	CA	95503-5445
019-021-011-000	Po Box 203	Arcata	CA	95518
018-371-018-000	1919 Roth Ct	Eureka	CA	95503
301-052-032-000	265 Higgins St	Eureka	CA	95503-5928
018-213-011-000	3925 F St	Eureka	CA	95503-6003
301-072-025-000	115 Redmond Rd	Eureka	CA	95503-9590
018-341-025-000	1100 Vista Dr	Eureka	CA	95503-6018
301-082-029-000	4917 Union St	Eureka	CA	95503-6345
301-041-036-000	Po Box 9061	Eureka	CA	95502-9061
301-191-012-000	4024 Jacoby Creek Rd	Bayside	CA	95524-9389
018-183-004-000	Po Box 804	Eureka	CA	95502
301-082-054-000	4865 Daisy Ln	Eureka	CA	95503-5985
301-162-026-000	505 Ryan Ct	Eureka	CA	95503-6476
301-082-009-000	4927 Union St	Eureka	CA	95503-6345
018-043-017-000	Po Box 145	Cutten	CA	95534
018-371-004-000	1950 Roth Ct	Eureka	CA	95503
301-051-016-000	4705 Crane St	Eureka	CA	95503-5924
018-211-005-000	3925 Campton Rd	Eureka	CA	95503-6013
018-185-015-000	3871 F St	Eureka	CA	95503-6001
301-041-043-000	4755 Kincaid Ct	Eureka	CA	95503-1314
301-041-042-000	4767 Kincaid Ct	Eureka	CA	95503-1314
018-361-003-000	1015 Vista Dr	Eureka	CA	95503-6053
018-041-022-000	Po Box 276	Cutten	CA	95534
301-152-026-000	5324 Pinecrest Ct	Eureka	CA	95503-6377
301-072-037-000	Po Box 7222	Eureka	CA	95502-7222
019-041-019-000	4589 Kincaid Ct	Eureka	CA	95503-5966
018-121-024-000	3940 Bryeld Ct	Eureka	CA	95503-7948
019-011-030-000				
301-162-027-000	511 Ryan Ct	Eureka	CA	95503-6476

APN	Address	City	State	Zip
301-041-021-000	4665 California St	Eureka	CA	95503
305-051-033-000	Po Box 1082	Ferndale	CA	95536-1082
018-192-017-000	1972 Zehndner Ave	Arcata	CA	95521-5468
301-152-018-000	5460 Pinecrest Ct	Eureka	CA	95503-6375
301-041-024-000	4621 Little California St	Eureka	CA	95503-5978
301-072-027-000	2402 Myrtle Ave	Eureka	CA	95501-3420
301-191-061-000	535 Valley View Dr	Eureka	CA	95503-6461
018-213-007-000	217 Escott St	Big Rapids	MI	49307-1709
301-152-022-000	5400 Pinecrest Ct	Eureka	CA	95503-6375
018-043-014-000	927 Janie Rd	Mckinleyville	CA	95519-7524
019-021-012-000	3945 Tess Ct	Eureka	CA	95503-5172
301-072-032-000	4887 Crane St	Eureka	CA	95503-6308
018-213-016-000	Po Box 6968	Eureka	CA	95502-6968
018-341-026-000	1050 Vista Dr	Eureka	CA	95503-6080
018-192-005-000	3846 F St	Eureka	CA	95503-6002
301-072-011-000	3342 K St	Eureka	CA	95503-5445
301-201-017-000	510 Valley View Dr	Eureka	CA	95503-6462
018-193-007-000	617 Pacific Ave	Alameda	CA	94501-8209
018-204-011-000	3915 Davis Ct	Eureka	CA	95503-6085
018-371-002-000	1994 Roth Ct	Eureka	CA	95503
018-192-007-000	3870 F St	Eureka	CA	95503-6002
019-011-028-000	271 Bacchetti Dr	Eureka	CA	95503-5188
301-152-014-000	5381 Pinecrest Ct	Eureka	CA	95503-6376
301-041-051-000	4639 Kincaid Ct	Eureka	CA	95503-1312
018-121-022-000	3956 Bryeld Ct	Eureka	CA	95503-7948
018-183-008-000	3890 H St	Eureka	CA	95503-6056
018-261-007-000	1752 Eastwood Dr	Springfield	OH	45501
018-041-021-000	Po Box 276	Cutten	CA	95534
301-191-009-000	560 Gatliff Ave	Eureka	CA	95503-6453
018-042-027-000	518 W Clark St	Eureka	CA	95501
018-041-038-000	3941 Cedar St	Eureka	CA	95503-6248
018-121-011-000	3935 Brogan Way	Eureka	CA	95503-7941
018-033-019-000	2044 Mckeown Ln	Eureka	CA	95503-6239
301-052-011-000	319 Higgins St	Eureka	CA	95503-5930
018-041-027-000	3939 Cedar St	Eureka	CA	95503-6248
019-021-039-000	3848 Lissa Dr	Eureka	CA	95503-5171
018-341-028-000	1164 Vista Dr	Eureka	CA	95503-6018
019-021-049-000	3835 Lissa Dr	Eureka	CA	95503-5171
301-111-013-000	276 Artino St	Eureka	CA	95503-5983
301-162-025-000	501 Ryan Ct	Eureka	CA	95503-6476
301-082-022-000	1840 Myrtle Ave	Eureka	CA	95501-1446
301-082-083-000	Po Box 3687	Eureka	CA	95502-3687
301-082-077-000	4859 Starlund Ct	Eureka	CA	95503-1316
018-033-020-000	2024 Mckeown Ln	Eureka	CA	95503-6239
301-041-049-000	8881 Poplar Ave	Cotati	CA	94931-9606
301-162-019-000	549 Gatliff Ave	Eureka	CA	95503-6452
018-202-019-000	3930 E St	Eureka	CA	95503-6028

APN	Address	City	State	Zip
301-041-048-000	Po Box 3597	Eureka	CA	95502-3597
301-041-011-000	1465 Stallion Ct	Mckinleyville	CA	95519-5819
301-191-048-000	536 Valley View Dr	Eureka	CA	95503-6462
301-052-031-000	4719 Union St	Eureka	CA	95503-5952
301-052-007-000	4693 Union St	Eureka	CA	95503-5950
018-042-016-000	2620 Greenwood Heights Dr	Kneeland	CA	95549-8907
018-185-017-000	4016 Viale Ave	Eureka	CA	95503-3440
301-052-016-000	377 Higgins St	Eureka	CA	95503-5930
018-042-003-000	2360 Redwood St	Eureka	CA	95503-6263
301-041-034-000	4686 Kincaid Ct	Eureka	CA	95503-5967
018-224-002-000	4003 Campton Rd	Eureka	CA	95503-6064
301-171-008-000	499 Gatliff Ave	Eureka	CA	95503-6494
018-341-003-000	1154 Vista Dr	Eureka	CA	95503-6018
301-162-029-000	520 Ryan Ct	Eureka	CA	95503-6476
018-042-024-000	3940 Cedar St	Eureka	CA	95503-7615
301-052-033-000	297 Higgins St	Eureka	CA	95503-5928
018-211-004-000	2050 Redwood St	Eureka	CA	95503-8921
018-043-020-000	2950 E St C	Eureka	CA	95501-4300
018-043-021-000	2950 E St C	Eureka	CA	95501-4300
018-033-018-000	2054 Mckeown Ln	Eureka	CA	95503-6239
018-192-008-000	2121 Meadowwood Ln	Eureka	CA	95503-6734
018-041-001-000	928 H St	Arcata	CA	95521-6233
018-043-026-000	646 Rocking Horse Ct	San Jose	CA	95123-5522
301-082-005-000	380 Higgins St	Eureka	CA	95503-5931
018-201-010-000	3973 Brookwood Dr	Bayside	CA	95524-9305
018-202-001-000	3910 E St	Eureka	CA	95503-6028
018-043-027-000	646 Rocking Horse Ct	San Jose	CA	95123-5522
018-192-009-000	698 46th St	Oakland	CA	94609-1852
301-051-018-000	4731 Crane St	Eureka	CA	95503-5924
018-043-003-000	517 Everding St	Eureka	CA	95503-5397
305-051-001-000	Po Box 6264	Eureka	CA	95502-6264
305-051-035-000	5959 Humboldt Hill Rd	Eureka	CA	95503-7034
018-181-013-000	11902 Sandy River Ct	Bakersfield	CA	93311-9313
018-183-011-000	3841 G St	Eureka	CA	95503-6007
018-183-012-000	3857 G St	Eureka	CA	95503-6007
305-121-005-000	Po Box 6514	Eureka	CA	95502-6514
018-261-012-000	1899 11th St	Arcata	CA	95521-5405
301-181-002-000	207 Fredricson Ln	Eureka	CA	95503-6746
301-121-007-000	5127 Meyers Ave	Eureka	CA	95503-6358
018-032-006-000	2440 I St	Eureka	CA	95501-4246
305-021-011-000	2950 E St C	Eureka	CA	95501-4300
305-051-032-000	297 Valley Ave	Fortuna	CA	95540-9780
301-091-032-000	675 Martin Way	Eureka	CA	95503-6456
018-043-025-000	3932 Walnut Dr	Eureka	CA	95503-6257
305-131-016-000	60 E Ridge Ln	Mckinleyville	CA	95519-9299
018-042-008-000	27 Se Benaiah Cir	Bend	OR	97702-1554
305-021-009-000	2950 E St C	Eureka	CA	95501-4300

APN	Address	City	State	Zip
305-101-020-000	6060 Humboldt Hill Rd	Eureka	CA	95503-7013
305-051-002-000	6135 Pryor St	Eureka	CA	95503-7308
301-121-008-000	5115 Meyers Ave	Eureka	CA	95503-6358
304-191-001-000	Po Box 23	Eureka	CA	95502
301-051-011-000	4293 Horseman Ln	Eureka	CA	95503-7933
305-101-044-000	2031 Eich Rd	Eureka	CA	95503-6909
304-181-005-000	2950 E St C	Eureka	CA	95501-4300
304-171-001-000	2950 E St C	Eureka	CA	95501-4300
018-042-026-000	3926 Cedar St	Eureka	CA	95503-6249
018-204-010-000	3925 Davis Ct	Eureka	CA	95503-6085
018-183-015-000	Po Box 1185	Atwater	CA	95301-1185
018-181-023-000	Po Box 933	Saint David	AZ	85630
018-194-043-000	3864 D St	Eureka	CA	95503-6031
301-152-017-000	5453 Pinecrest Ct	Eureka	CA	95503-6374
301-141-017-000	440 Herrick Ave	Eureka	CA	95503-6420
019-021-041-000	3836 Lissa Dr	Eureka	CA	95503-5171
018-185-014-000	Po Box 6068	Eureka	CA	95502-6068
301-141-013-000	478 Herrick Ave	Eureka	CA	95503-6420
018-224-003-000	4015 Campton Rd	Eureka	CA	95503-6064
301-091-024-000	196 Higgins St	Eureka	CA	95503-5927
018-041-034-000	3927 Cross Ln	Eureka	CA	95503-6273
301-171-005-000	431 Gatliff Ave	Eureka	CA	95503-6480
301-162-032-000	139 Joscolo Vw	Clayton	CA	94517-1807
019-021-044-000	801 E Shadow Ridge Rd	Casa Grande	AZ	85122-1713
017-172-033-000	3045 Main St	Eureka	CA	95503-9704
301-152-015-000	5431 Pinecrest Ct	Eureka	CA	95503-6374
018-204-007-000	3955 Davis Ct	Eureka	CA	95503-6085
301-211-007-000	Po Box 398	Bayside	CA	95524
301-162-035-000	498 Gatliff Ave	Eureka	CA	95503-6451
301-162-020-000	160 Archgate Ct	Clarksville	TN	37043-2819
301-041-022-000	4681 Little California St	Eureka	CA	95503-5978
018-193-009-000	2050 Redwood St	Eureka	CA	95503-8921
018-121-027-000	3922 Bryeld Ct	Eureka	CA	95503-7948
301-152-019-000	9210 Red Baron Blvd	Reno	NV	89506-2971
018-041-035-000	1812 Hodgson St	Eureka	CA	95503-5515
301-082-047-000	4850 Allen Ct	Eureka	CA	95503-5902
018-041-029-000	2480 Redwood St	Eureka	CA	95503-6243
301-082-048-000	Po Box 401	Eureka	CA	95502
019-011-031-000	272 Bacchetti Dr	Eureka	CA	95503-5183
018-371-022-000	2442 Emerald Ct	Eureka	CA	95501
018-291-005-000	2501 Union St	Eureka	CA	95501-4040
301-152-027-000	6088 Nelson Ln	Eureka	CA	95503-6737
301-072-017-000	4949 Crane St	Eureka	CA	95503-6310
018-032-007-000	723 Maxwell St	Fortuna	CA	95540-3147
301-072-029-000	4846 Union St	Eureka	CA	95503-6344
018-213-006-000	4029 Walnut Dr	Eureka	CA	95503-7602
301-141-009-000	4755 Patricia Dr	Eureka	CA	95503-6422

APN	Address	City	State	Zip
018-183-003-000	3890 H St	Eureka	CA	95503-6056
301-082-070-000	4940 Starlund Ct	Eureka	CA	95503-1317
018-181-026-000	1837 O St	Eureka	CA	95501-3069
910-000-995-000	525 Herrick Ave #41	Eureka	CA	95503-6382
301-152-016-000	5447 Pinecrest Ct	Eureka	CA	95503-6374
301-191-059-000	510 Valley View Dr	Eureka	CA	95503-6462
305-101-021-000	5900 Humboldt Hill Rd	Eureka	CA	95503-7178
301-052-027-000	1123 Freshwater Rd	Eureka	CA	95503-9558
018-193-006-000	3860 E St	Eureka	CA	95503-6065
018-361-001-000	4015 Campton Rd	Eureka	CA	95503-6064
301-041-041-000	4779 Kincaid Ct	Eureka	CA	95503-1314
018-185-013-000	2955 Anita St	Redding	CA	96001-3640
019-041-009-000	2839 F St	Eureka	CA	95501-4422
301-041-025-000	5619 Lakepointe Dr	Rocklin	CA	95677-3824
301-082-082-000	4945 Starlund Ct	Eureka	CA	95503-1318
018-341-019-000	1091 Vista Dr	Eureka	CA	95503-6053
301-082-084-000	226 Buhne St A	Eureka	CA	95501-4107
301-082-056-000	3370 H St	Eureka	CA	95503-5363
306-391-002-000	10 Barscape Ln	Eureka	CA	95503-8524
018-042-017-000	4331 Liberty Bell Ct	Eureka	CA	95503-8913
018-271-005-000	1752 Eastwood Dr	Springfield	OH	45501
018-203-004-000	257 Spruce St	Eureka	CA	95503-6041
301-041-045-000	4731 Kincaid Ct	Eureka	CA	95503-1314
018-193-005-000	3848 E St	Eureka	CA	95503-6065
018-202-022-000	3923 D St	Eureka	CA	95503-6022
018-211-006-000	3953 Campton Rd	Eureka	CA	95503-6013
301-052-036-000	2484 Freshwater Rd	Eureka	CA	95503-9419
018-193-017-000	Po Box 714	Bayside	CA	95524
301-051-021-000	4734 Union St	Eureka	CA	95503-5953
301-041-012-000	1085 Delaware St	Imperial Beach	CA	91932-2726
018-371-009-000	1919 Roth Ct	Eureka	CA	95503
301-051-031-000	485 Higgins St	Eureka	CA	95503-5971
019-011-029-000	277 Bacchetti Dr	Eureka	CA	95503-5184
301-152-013-000	916 S St	Eureka	CA	95501-2064
301-082-004-000	4869 Union St	Eureka	CA	95503-6343
301-152-006-000	Po Box 7193	Eureka	CA	95502-7193
018-121-029-000	3990 Ardview Ln	Eureka	CA	95501-3459
018-101-015-000	Po Box 6610	Eureka	CA	95502-6610
301-201-016-000	510 Valley View Dr	Eureka	CA	95503-6462
301-041-023-000	4617 Little California St	Eureka	CA	95503-5978
301-162-014-000	3973 Brookwood Dr	Bayside	CA	95524-9305
018-121-025-000	3990 Ardview Ln	Eureka	CA	95501-3459
018-204-012-000	1580 Myrtle Ave	Eureka	CA	95501-1454
301-141-012-000	464 Herrick Ave	Eureka	CA	95503-6420
018-032-012-000	2047 Mckeown Ln	Eureka	CA	95503-6238
301-082-036-000	106 Higgins St	Eureka	CA	95503-5927
018-341-018-000	1091 Vista Dr	Eureka	CA	95503-6053

APN	Address	City	State	Zip
301-072-006-000	104 thoreau Ln	Folsom	CA	95630-6522
018-201-020-000	5107 Jacoby Creek Rd	Bayside	CA	95524-9397
018-194-041-000	3854 D St	Eureka	CA	95503-6031
301-082-075-000	4860 Starlund Ct	Eureka	CA	95503-1315
019-021-046-000	345 Bacchetti Ct	Eureka	CA	95503-5198
018-121-014-000	3905 Brogan Way	Eureka	CA	95503-7941
018-121-013-000	3915 Brogan Way	Eureka	CA	95503-7941
018-192-006-000	3860 F St	Eureka	CA	95503-6002
301-141-010-000	399 Gatliff Ave	Eureka	CA	95503-6479
018-121-032-000	3923 Bryeld Ct	Eureka	CA	95503-7949
301-082-039-000	4941 Artino Ct	Eureka	CA	95503-5994
301-082-095-000	Po Box 5711	Eureka	CA	95502-5711
018-185-008-000	2107 Harrison Ave	Eureka	CA	95501-3213
018-371-023-000	1922 Roth Ct	Eureka	CA	95503
301-082-057-000	4863 Union St	Eureka	CA	95503-6343
018-183-014-000	605 Oak St	Eureka	CA	95503-6057
301-152-009-000	1846 Broadway	Eureka	CA	95501-2101
018-371-010-000	2990 Woodland Ct	Arcata	CA	95521-4203
018-193-016-000	3881 D St	Eureka	CA	95503-6021
018-183-017-000	2005 I St	Eureka	CA	95501-3046
018-192-018-000	413 Oak St	Eureka	CA	95503-6036
301-082-046-000	4862 Allen Ct	Eureka	CA	95503-5902
018-181-027-000	3925 Campton Rd	Eureka	CA	95503-6013
301-072-008-000	4922 Union St	Eureka	CA	95503-6346
301-072-035-000	Po Box 7228	Eureka	CA	95502-7228
018-193-014-000	Po Box 20223	Riverside	CA	92516
018-121-010-000	3945 Brogan Way	Eureka	CA	95503-7941
019-021-045-000	333 Bacchetti Ct	Eureka	CA	95503-5198
301-152-008-000	5421 Pinecrest Ct	Eureka	CA	95503-6374
301-082-008-000	4849 Union St	Eureka	CA	95503-6343
301-162-034-000	484 Gatliff Ave	Eureka	CA	95503-6451
301-041-040-000	4778 Kincaid Ct	Eureka	CA	95503-1313
301-152-021-000	893 Nancy Ct	Eureka	CA	95503-6360
301-191-010-000	5211 Leppek Ct	Eureka	CA	95503-6332
301-091-030-000	4845 Hidden Meadows Ln	Eureka	CA	95503-5918
301-082-041-000	4863 Allen Ct	Eureka	CA	95503-5901
301-082-038-000	4805 Allen Ct	Eureka	CA	95503-5901
301-082-033-000	4905 Union St	Eureka	CA	95503-6345
018-032-013-000	2050 Redwood St	Eureka	CA	95503-8921
301-072-009-000	4932 Union St	Eureka	CA	95503-6346
301-082-014-000	4888 Artino Ct	Eureka	CA	95503-5975
019-021-051-000	3849 Lissa Dr	Eureka	CA	95503-5171
301-072-036-000	Po Box 672	Fortuna	CA	95540
018-213-015-000	Po Box 384	Cutten	CA	95534
301-052-021-000	249 Higgins St	Eureka	CA	95503-5928
301-052-035-000	4629 Union St	Eureka	CA	95503-5950
301-141-016-000	Po Box 5711	Eureka	CA	95502-5711

APN	Address	City	State	Zip
301-082-001-000	Po Box 5711	Eureka	CA	95502-5711
304-191-002-000	2950 E St C	Eureka	CA	95501-4300
301-041-046-000	4699 Kincaid Ct	Eureka	CA	95503-1312
018-371-001-000	3928 T St	Eureka	CA	95503-6242
018-194-022-000	3890 D St	Eureka	CA	95503-6031
018-193-004-000	3828 E St	Eureka	CA	95503-6065
301-082-032-000	4887 Union St	Eureka	CA	95503-6343
301-162-037-000	2437 Russ St	Eureka	CA	95501-4753
301-041-009-000	4670 Little California St	Eureka	CA	95503-5919
018-185-018-000	3880 G St	Eureka	CA	95503-6008
018-034-015-000	3173 Alora Ln	Eureka	CA	95503-4801
301-082-079-000	4889 Starlund Ct	Eureka	CA	95503-1316
301-072-026-000	4969 Crane St	Eureka	CA	95503-6310
018-021-010-000	2207 Redwood St	Eureka	CA	95503-6260
301-082-030-000	517 Everding St	Eureka	CA	95503-5397
301-111-003-000	1730 Monnon Rd	Grants Pass	OR	97527
018-032-009-000	Po Box 319	Cutten	CA	95534
018-202-020-000	322 Oak St	Eureka	CA	95503-6035
018-271-003-000	3956 Jacobs Ave	Eureka	CA	95501
301-082-055-000	310 Higgins St	Eureka	CA	95503-5931
018-193-012-000	3851 D St	Eureka	CA	95503-6021
018-032-008-000	2072 Redwood St	Eureka	CA	95503-8921
018-211-003-000	3925 Campton Rd	Eureka	CA	95503-6013
018-213-002-000	Po Box 6968	Eureka	CA	95502-6968
305-031-006-000	Po Box 996	Ukiah	CA	95482
301-221-001-000	Po Box 398	Bayside	CA	95524
304-171-002-000	2950 E St C	Eureka	CA	95501-4300
305-041-052-000	Po Box 6514	Eureka	CA	95502-6514
301-181-003-000	Po Box 3716	Eureka	CA	95502-3716
304-181-004-000	5497 Elk River Rd	Eureka	CA	95503-9667
306-391-006-000	6060 Humboldt Hill Rd	Eureka	CA	95503-7013
305-101-036-000	60 Park Ridge Rd	San Rafael	CA	94903-1826
305-021-008-000	2950 E St C	Eureka	CA	95501-4300
301-111-002-000	1720 Snow View Pl	Eureka	CA	95501-2749
305-131-007-000	60 E Ridge Ln	Mckinleyville	CA	95519-9299
301-171-004-000	Po Box 7100	Eureka	CA	95502-7100
301-041-015-000	4615 California St	Eureka	CA	95503
018-213-001-000	500 Hunts Dr	Mckinleyville	CA	95519-9289
018-042-021-000	Po Box 2413	Mckinleyville	CA	95519-2413
301-162-018-000	5553 Zeck Ln	Eureka	CA	95503-6467
301-072-024-000	4843 Crane St	Eureka	CA	95503-6308
301-162-023-000	742 Herrick Ave	Eureka	CA	95503-6370
301-051-008-000	4740 Union St	Eureka	CA	95503-5953
018-192-004-000	18470 Wildridge Rd	Cottonwood	CA	96022-8629
018-371-008-000	1919 Roth Ct	Eureka	CA	95503
018-203-008-000	Po Box 6621	Eureka	CA	95502-6621
301-072-031-000	4881 Crane St	Eureka	CA	95503-6308

APN	Address	City	State	Zip
019-021-053-000	350 Bacchetti Ct	Eureka	CA	95503-5197
301-082-007-000	300 Higgins St	Eureka	CA	95503-5931
301-162-036-000	505 Gatliff Ave	Eureka	CA	95503-6452
018-032-011-000	2085 Mckeown Ln	Eureka	CA	95503-6238
018-185-004-000	4145 Morgan Pl	Eureka	CA	95503-6066
018-193-008-000	2832 Broadway	Eureka	CA	95501-3803
018-341-017-000	1101 Vista Dr	Eureka	CA	95503-6017
018-185-016-000	6399 Purdue Dr	Eureka	CA	95503-7048
018-111-014-000	Po Box 494	Garberville	CA	95542
019-021-043-000	180 Blue Spruce Dr	Eureka	CA	95503-7200
018-111-013-000	1055 Vista Dr	Eureka	CA	95503-6053
018-042-007-000	3926 Bryeld Ct	Eureka	CA	95503-7948
018-371-017-000	1909 Roth Ct	Eureka	CA	95503
1812147	2720 M St	Eureka	CA	95501-4513
1812146	Po Box 5276	Eureka	CA	95502-5276
1812145	Po Box 5276	Eureka	CA	95502-5276
1812144	2720 M St	Eureka	CA	95501-4513
1834116	1111 Vista Dr	Eureka	CA	95503-6017
018-381-001-000	Po Box 6610	Eureka	CA	95502-6610
1812142	2720 M St	Eureka	CA	95501-4513
301-082-013-000	11000 W End Rd	Arcata	CA	95521-8946
1812143	2720 M St	Eureka	CA	95501-4513
017-172-030-000	3045 Main St	Eureka	CA	95503-9704
301-051-030-000	5137 Blackberry Ln	Eureka	CA	95503-6584
301-082-078-000	4865 Starlund Ct	Eureka	CA	95503-1316
018-121-026-000	3926 Bryeld Ct	Eureka	CA	95503-7948
301-041-013-000	4662 Little California St	Eureka	CA	95503-5919
301-082-053-000	4855 Daisy Ln	Eureka	CA	95503-5985
018-193-013-000	3861 D St	Eureka	CA	95503-6021
018-192-013-000	3839 E St	Eureka	CA	95503-6026
301-052-015-000	4707 Union St	Eureka	CA	95503-5952
301-082-074-000	1990 11th St	Arcata	CA	95521-5401
018-091-007-000	533 E St	Eureka	CA	95501
018-193-020-000	3841 D St	Eureka	CA	95503-6021
018-341-015-000	1121 Vista Dr	Eureka	CA	95503-6017
017-163-007-000	Po Box 6859	Eureka	CA	95502-6859
018-192-014-000	3851 E St	Eureka	CA	95503-6026
018-261-015-000	214 Martin Dr	Aptos	CA	95003-4605
301-091-033-000	200 Higgins St	Eureka	CA	95503-5929
301-072-038-000	Po Box 6329	Eureka	CA	95502-6329
018-261-011-000	Po Box 6134	Eureka	CA	95502-6134
301-082-081-000	4929 Starlund Ct	Eureka	CA	95503-1318
019-011-032-000	266 Bacchetti Dr	Eureka	CA	95503-5183
018-224-001-000	3965 Campton Rd	Eureka	CA	95503-6013
301-171-006-000	451 Gatliff Ave	Eureka	CA	95503-6480
301-082-035-000	280 Higgins St	Eureka	CA	95503-5929
301-041-026-000	2388 Hewitt Rd	Mckinleyville	CA	95519-9238

APN	Address	City	State	Zip
018-204-009-000	3935 Davis Ct	Eureka	CA	95503-6085
018-042-011-000	4500 Union St	Eureka	CA	95503-5949
018-201-011-000	2292 Parkwood Blvd	Eureka	CA	95503-7430
301-041-039-000	4766 Kincaid Ct	Eureka	CA	95503-1313
018-183-013-000	3873 G St	Eureka	CA	95503-6007
910-001-333-000	Po Box 740	Eureka	CA	95502
301-041-010-000	4746 Little California St	Eureka	CA	95503-5921
018-192-015-000	4747 Aster Ave	Mckinleyville	CA	95519-9435
301-082-037-000	110 Higgins St	Eureka	CA	95503-5927
018-201-003-000	4029 Walnut Dr	Eureka	CA	95503-7602
019-011-022-000	255 Bacchetti Dr	Eureka	CA	95503-5188
301-041-007-000	125 Higgins St	Eureka	CA	95503-5926
018-121-034-000	3943 Bryeld Ct	Eureka	CA	95503-7949
301-152-012-000	520 Herrick Ave	Eureka	CA	95503-6302
018-121-012-000	3925 Brogan Way	Eureka	CA	95503-7941
019-011-033-000	260 Bacchetti Dr	Eureka	CA	95503-5183
301-152-010-000	5329 Pinecrest Ct	Eureka	CA	95503-6376
018-111-016-000	3760 J St	Eureka	CA	95503-5422
018-194-021-000	3864 D St	Eureka	CA	95503-6031
018-121-031-000	3990 Ardview Ln	Eureka	CA	95501-3459
301-191-042-000	579 Valley View Dr	Eureka	CA	95503-6461
301-082-073-000	4900 Starlund Ct	Eureka	CA	95503-1317
018-111-015-000	3760 J St	Eureka	CA	95503-5422
301-082-080-000	4905 Starlund Ct	Eureka	CA	95503-1318
301-041-035-000	4698 Kincaid Ct	Eureka	CA	95503-5967
301-041-044-000	4743 Kincaid Ct	Eureka	CA	95503-1314
301-041-052-000	4617 Kincaid Ct	Eureka	CA	95503-1312
018-183-005-000	3850 H St	Eureka	CA	95503-6056
301-041-047-000	4687 Kincaid Ct	Eureka	CA	95503-1312
301-072-010-000	3342 K St	Eureka	CA	95503-5445
018-361-005-000	4015 Campton Rd	Eureka	CA	95503-6064
301-082-094-000	Po Box 5711	Eureka	CA	95502-5711
301-162-028-000	517 Ryan Ct	Eureka	CA	95503-6476
306-391-001-000	2304 H St	Eureka	CA	95501-4103
018-121-020-000	3990 Ardview Ln	Eureka	CA	95501-3459
018-091-005-000	1650 Hemlock St	Eureka	CA	95503-5511
018-213-017-000	Po Box 6968	Eureka	CA	95502-6968
018-121-033-000	3933 Bryeld Ct	Eureka	CA	95503-7949
018-361-002-000	1015 Vista Dr	Eureka	CA	95503-6053
018-194-037-000	3854 D St	Eureka	CA	95503-6031
018-183-006-000	3850 H St	Eureka	CA	95503-6056
301-082-034-000	248 Huntoon St	Eureka	CA	95501-4116
301-041-014-000	4670 Little California St	Eureka	CA	95503-5919
018-201-002-000	3930 F St	Eureka	CA	95503-6004
301-041-053-000	3414 O St	Eureka	CA	95503-5518
018-201-021-000	3920 F St	Eureka	CA	95503-6004
301-191-050-000	560 Valley View Dr	Eureka	CA	95503-6462

APN	Address	City	State	Zip
018-121-030-000	3702 O St	Eureka	CA	95503-5523
301-041-050-000	276 River Rock Rd	Lewiston	CA	96052
019-021-040-000	3842 Lissa Dr	Eureka	CA	95503-5171
301-052-020-000	241 Higgins St	Eureka	CA	95503-5928
018-201-018-000	317 W Cedar St	Eureka	CA	95501-1644
018-043-015-000	Po Box 77	Cutten	CA	95534
018-194-024-000	3854 D St	Eureka	CA	95503-6031
301-051-026-000	4740 Union St	Eureka	CA	95503-5953
301-051-025-000	11000 W End Rd	Arcata	CA	95521-8946
301-191-062-000	3332 Summer St	Eureka	CA	95503-5149
301-191-041-000	557 Valley View Dr	Eureka	CA	95503-6461
301-051-020-000	1608 Hayes St	Eureka	CA	95501-4654
301-072-003-000	7201 Shelley Rd	Montague	CA	96064-9269
301-052-028-000	247 Higgins St C	Eureka	CA	95503-1311
017-163-006-000	Po Box 6859	Eureka	CA	95502-6859
018-202-018-000	3939 D St	Eureka	CA	95503-6022
301-171-011-000	305 Gatliff Ave	Eureka	CA	95503-6479
301-191-014-000	Po Box 8279	Eureka	CA	95502-8279
019-021-054-000	374 Bacchetti Ct	Eureka	CA	95503-5197
018-032-010-000	2071 Mckeown Ln	Eureka	CA	95503-6238
018-281-003-000	63 Garibaldi Way	Henderson	NV	89011-2502
301-162-031-000	508 Ryan Ct	Eureka	CA	95503-6476
018-202-002-000	3961 E St	Eureka	CA	95503-6027
018-121-036-000	3990 Ardview Ln	Eureka	CA	95501-3459
301-082-069-000	4966 Starlund Ct	Eureka	CA	95503-1317
301-162-033-000	470 Gatliff Ave	Eureka	CA	95503-6451
30115204	510 Herrick Ave	Eureka	CA	95503-6302
018-201-019-000	3911 E St	Eureka	CA	95503-6027
305-121-004-000	5829 Humboldt Hill Rd	Eureka	CA	95503-7011
301-111-001-000	3402 Rocky Ln	Hydesville	CA	95547-9457
018-181-014-000	3847 H St	Eureka	CA	95503-6055
301-052-017-000	2414 D St	Eureka	CA	95501-4159
301-082-058-000	4867 Union St	Eureka	CA	95503-6343
018-121-035-000	3990 Ardview Ln	Eureka	CA	95501-3459
018-185-012-000	3841 F St	Eureka	CA	95503-6001
305-101-037-000	6820 Linda Rd	Eureka	CA	95503-7148
301-152-011-000	5355 Pinecrest Ct	Eureka	CA	95503-6376
018-371-003-000	1966 Roth Ct	Eureka	CA	95503
301-072-002-000	Po Box 6159	Eureka	CA	95502-6159
018-371-019-000	1325 Grand Ave	San Rafael	CA	94901-2232
017-032-012-000	825 5th St #111	Eureka	CA	95501-1107
018-185-006-000	Po Box 339	Loleta	CA	95551
018-041-016-000	485 E California Ave	Arcata	CA	95521-5277
301-052-034-000	255 Higgins St	Eureka	CA	95503-5928
018-202-003-000	1805 Sunset Dr	Eureka	CA	95503-2410
018-181-022-000	2177 Meadowwood Ln	Eureka	CA	95503-6734
30107228	4779 Kincaid Ct	Eureka	CA	95503-1314

APN	Address	City	State	Zip
301-051-022-000	4704 Union St	Eureka	CA	95503-5953
018-041-048-000	3100 Main St	Eureka	CA	95503-9704
018-011-004-000	Po Box 311	Cutten	CA	95534
018-041-045-000	Po Box 459	Miranda	CA	95553
018-185-005-000	3575 Agate St	Eugene	OR	97405-5840
018-043-002-000	Po Box 576	Fortuna	CA	95540
305-021-010-000	2950 E St C	Eureka	CA	95501-4300
017-152-015-000	2855 Rancho Vista Dr	Eureka	CA	95503-9803
304-181-002-000	2950 E St C	Eureka	CA	95501-4300
018-261-008-000	1752 Eastwood Dr	Springfield	OH	45501
017-164-003-000	195 Kluck Ln	Eureka	CA	95503-9717
305-031-012-000	Po Box 6514	Eureka	CA	95502-6514
305-101-043-000	115 Redmond Rd	Eureka	CA	95503-9590
301-082-002-000	Po Box 5711	Eureka	CA	95502-5711
305-131-013-000	60 E Ridge Ln	Mckinleyville	CA	95519-9299
018-042-006-000	518 W Clark St	Eureka	CA	95501
017-241-001-000	1301 5th Ave #2700	Seattle	WA	98101-2675
301-041-003-000	Po Box 158	Cutten	CA	95534
305-131-038-000	60 E Ridge Ln	Mckinleyville	CA	95519-9299
305-101-045-000	Po Box 5388	Eureka	CA	95502-5388
301-041-004-000	Po Box 408	Cutten	CA	95534
305-101-028-000	6820 Linda Rd	Eureka	CA	95503-7148
018-042-020-000	518 W Clark St	Eureka	CA	95501
301-131-003-000	445 Herrick Ave	Eureka	CA	95503-6419
305-051-013-000	4283 Central Ave	Mckinleyville	CA	95519-9417
018-121-028-000	3990 Ardview Ln	Eureka	CA	95501-3459
018-192-016-000	Po Box 6514	Eureka	CA	95502-6514
017-172-017-000	3088 Main St	Eureka	CA	95503-9704
301-072-007-000	4912 Union St	Eureka	CA	95503-6346
305-051-034-000	2025 Adkins Ln	Eureka	CA	95503-8538
018-194-044-000	3888 D St	Eureka	CA	95503-6031
301-191-011-000	532 Gatliff Ave	Eureka	CA	95503-6453
301-082-040-000	4855 Allen Ct	Eureka	CA	95503-5901
301-191-013-000	506 Gatliff Ave	Eureka	CA	95503-6453
018-033-015-000	Po Box 378	Cutten	CA	95534
018-204-008-000	3945 Davis Ct	Eureka	CA	95503-6085
301-072-030-000	694 Pleasant Ave	Eureka	CA	95503-7703
301-041-037-000	4742 Kincaid Ct	Eureka	CA	95503-1313
019-031-003-000	4255 Union St	Eureka	CA	95503-5943
018-194-042-000	20 Silver Tip Ln	Eureka	CA	95503-6082
301-041-020-000	4643 Little California St	Eureka	CA	95503-5978
019-011-027-000	1565 Gates St	Eureka	CA	95501-2606
017-172-026-000	3076 Main St	Eureka	CA	95503-9704
018-341-027-000	19880 Holstein Ln	Redding	CA	96002-9601
018-185-019-000	Po Box 1236	Trinidad	CA	95570-1236
018-371-021-000	1991 Roth Ct	Eureka	CA	95503
301-072-034-000	4921 Crane St	Eureka	CA	95503-6310

APN	Address	City	State	Zip
019-021-050-000	3841 Lissa Dr	Eureka	CA	95503-5171
018-212-004-000				
301-121-011-000	5021 Meyers Ave	Eureka	CA	95503-6356
018-032-002-000	Po Box 6158	Eureka	CA	95502-6158
018-031-032-000	2125 Fern St	Eureka	CA	95503-6230
018-031-031-000	2115 Fern St	Eureka	CA	95503-6230
018-031-028-000	3955 V Street	Eureka	CA	95503-6244
018-031-027-000	3933 Salem Pl	Eureka	CA	95503-6240
018-031-026-000	3943 Salem Pl	Eureka	CA	95503-6240
018-031-025-000	2157 Fern St	Eureka	CA	95503-6231
018-031-024-000	2143 Fern St	Eureka	CA	95503-6230
018-031-023-000	2135 Fern St	Eureka	CA	95503-6230
018-031-020-000	2072 Redwood St	Eureka	CA	95503-8921
018-031-009-000	2105 Fern St	Eureka	CA	95503-6230
018-031-008-000	2163 Fern St	Eureka	CA	95503-6231
018-031-006-000	2151 Fern St	Eureka	CA	95503-6231
018-022-008-000	Po Box 188	Cutten	CA	95534
018-022-007-000	Po Box 188	Cutten	CA	95534
018-022-006-000	Po Box 188	Cutten	CA	95534
018-022-005-000	Po Box 188	Cutten	CA	95534
018-022-004-000	Po Box 188	Cutten	CA	95534
018-021-014-000	2196 Hemlock St	Eureka	CA	95503-5659
018-021-013-000	2192 Hemlock St	Eureka	CA	95503-5659
018-021-012-000	Po Box 188	Cutten	CA	95534
018-021-011-000	2162 Hemlock St	Eureka	CA	95503-5659
018-021-007-000	2207 Redwood St	Eureka	CA	95503-6260
018-021-006-000	Po Box 188	Cutten	CA	95534-0188
018-012-015-000	2207 Redwood St	Eureka	CA	95503-6260
018-012-014-000	1123 Freshwater Rd	Eureka	CA	95503-9558
018-012-013-000	2207 Redwood St	Eureka	CA	95503-6260
018-012-012-000	3857 Walnut Dr	Eureka	CA	95503-6255
018-012-011-000	2245 Redwood St	Eureka	CA	95503-6260
018-012-010-000	36055 Asquith Pl	Fremont	CA	94536-4628
018-012-009-000	3437 L St	Eureka	CA	95503-5453
018-012-008-000	Po Box 214	Cutten	CA	95534
018-012-007-000	3834 Walnut Dr	Eureka	CA	95503-6293
018-012-006-000	3816 Walnut Dr	Eureka	CA	95503-6256
018-012-004-000	1200 Douglas Way	South San Francisco	CA	94080-1326
018-012-003-000	2232 Hemlock St	Eureka	CA	95503-5677
018-012-001-000	2206 Hemlock St	Eureka	CA	95503-5677
018-011-025-000	3819 Walnut Dr	Eureka	CA	95503-8950
018-011-024-000	3857 Walnut Dr	Eureka	CA	95503-6255
018-011-023-000	2221 Wrigley Rd	Eureka	CA	95503-9618
018-011-022-000	4720 Briggs Ln	Eureka	CA	95503-7946
018-011-021-000	Po Box 304	Orleans	CA	95556
018-011-019-000	3831 Walnut Dr	Eureka	CA	95503-6255
018-011-018-000	2328 Hemlock St	Eureka	CA	95503-5660

APN	Address	City	State	Zip
018-011-016-000	Po Box 324	Cutten	CA	95534
018-011-015-000	2485 Redwood St	Eureka	CA	95503-6264
018-011-014-000	Po Box 825	Loyalton	CA	96118
018-011-012-000	2429 Redwood St	Eureka	CA	95503-6264
018-011-011-000	Po Box 6036	Eureka	CA	95502-6036
018-011-010-000	Po Box 368	Blue Lake	CA	95525
018-011-009-000	2359 Redwood St	Eureka	CA	95503-6262
018-011-008-000	3841 Dolbeer St	Eureka	CA	95503-5637
018-011-007-000	5862 Kneeland Rd	Kneeland	CA	95549-9075
018-011-006-000	Po Box 304	Orleans	CA	95556
018-011-002-000	2344 Hemlock St	Eureka	CA	95503-5660
017-221-001-000	195 Kluck Ln	Eureka	CA	95503-9717
017-173-003-000	825 5th St #111	Eureka	CA	95501-1107
017-173-002-000			CA	
017-172-047-000	149 Redmond Rd	Eureka	CA	95503-9590
017-172-046-000	3050 Main St	Eureka	CA	95503-9704
017-172-040-000	3002 Main St	Eureka	CA	95503-9704
017-172-039-000	2974 Main St	Eureka	CA	95503-9704
017-172-038-000	2930 Main St	Eureka	CA	95503-9704
017-172-037-000	2930 Main Street	Eureka	CA	95503-9704
017-172-021-000	1500 Glendale Dr	Mckinleyville	CA	95519-9208
017-172-020-000	Po Box 356	Cutten	CA	95534
017-164-002-000	825 5th St #111	Eureka	CA	95501-1107
017-163-009-000	Po Box 6859	Eureka	CA	95502-6859
017-163-002-000	2890 Main St	Eureka	CA	95503-9704
017-162-014-000	3316 Mitchell Heights Dr	Eureka	CA	95503-9732
017-162-013-000	3260 Mitchell Heights Dr	Eureka	CA	95503-9732
017-162-010-000	2949 Main St	Eureka	CA	95503-9704
017-162-009-000	3124 Mitchell Heights Dr	Eureka	CA	95503-9732
017-162-008-000	3150 Mitchell Heights Dr	Eureka	CA	95503-9732
017-162-002-000	3088 Mitchell Heights Dr	Eureka	CA	95503-9732
017-162-001-000	2851 Main St	Eureka	CA	95503-9704
017-161-025-000	2765 Rancho Vista Dr	Eureka	CA	95503-9800
017-161-024-000	2800 Rancho Vista Dr	Eureka	CA	95503-9803
017-161-023-000	3127 Mitchell Heights Dr	Eureka	CA	95503-9732
017-161-020-000	3127 Mitchell Heights Dr	Eureka	CA	95503-9732
017-161-019-000	Po Box 356	Cutten	CA	95534
017-161-018-000	132 Forest View Ct	Crescent City	CA	95531-9179
017-161-016-000	2807 Mitchell Heights Dr	Eureka	CA	95503-9301
017-161-015-000	2769 Dias Ln	Eureka	CA	95503-9714
017-161-014-000	2769 Dias Ln	Eureka	CA	95503-9714
017-161-005-000	3277 Mitchell Heights Dr	Eureka	CA	95503-9732
017-073-010-000	Po Box 327	Cutten	CA	95534
017-073-009-000	1653 Myrtle Ave	Eureka	CA	95501-1458
017-073-008-000	Po Box 327	Cutten	CA	95534
017-073-007-000	1653 Myrtle Ave	Eureka	CA	95501-1458
017-073-006-000	825 5th St #111	Eureka	CA	95501-1107

APN	Address	City	State	Zip
017-072-004-000	825 5th St #111	Eureka	CA	95501-1107
017-072-003-000	1653 Myrtle Ave	Eureka	CA	95501-1458
017-072-002-000	1589 Myrtle Ave	Eureka	CA	95501-1453
017-071-013-000	825 5th St #111	Eureka	CA	95501-1107
017-071-002-000	3150 Harris St	Eureka	CA	95503-4814
017-051-018-000	3385 Lucia Ave	Eureka	CA	95503-4852
017-051-017-000	3333 Lucia Ave	Eureka	CA	95503-4852
017-051-008-000	3350 Lucia Ave	Eureka	CA	95503-4853
017-051-007-000	3115 Elk St	Eureka	CA	95503-4835
017-051-006-000	3105 Elk St	Eureka	CA	95503-4835
017-032-014-000	Po Box 1089	Arcata	CA	95518-1089
017-032-011-000	825 5th St #111	Eureka	CA	95501-1107
017-032-008-000	3327 Timber Falls Ct	Eureka	CA	95503-4894
017-032-003-000				
017-031-013-000	825 5th St #111	Eureka	CA	95501-1107
017-031-001-000	3750 Harris St	Eureka	CA	95503-4854
016-201-005-000			CA	
016-201-004-000	2775 Pleasant Ave	Eureka	CA	95503-3461
016-201-002-000	2775 Pleasant Ave	Eureka	CA	95503-3461
016-201-001-000	2735 Pleasant Ave	Eureka	CA	95503-3461
010-121-002-000	3620 Williams St	Eureka	CA	95503-5246
159-010-004-4	Po Box 722 United States Of America	San Bruno	CA	94006
019-031-004-000	Po Box 714	Bayside	CA	95524
018-091-007-000	533 E St	Eureka	CA	95501
018-101-011-000	3225 Longfellow Blvd	Saint Louis	MO	63104-1626
305-041-052-000	Po Box 6514	Eureka	CA	95502-6514
304-181-004-000	5497 Elk River Rd	Eureka	CA	95503-9667
017-221-001-000	195 Kluck Ln	Eureka	CA	95503-9717
017-164-003-000	195 Kluck Ln	Eureka	CA	95503-9717
305-041-051-000	Po Box 6514	Eureka	CA	95502-6514
305-171-015-000	Po Box 149	Fortuna	CA	95540
305-201-002-000	Po Box 149	Fortuna	CA	95540
305-201-016-000	Po Box 149	Fortuna	CA	95540
017-031-001-000	3750 Harris St, Eureka, CA 95503-4854	Eureka	CA	95503

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APPENDIX B: EMF DISCUSSION

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.

1.7 REFERENCES

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

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

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

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

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

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

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

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

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

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

APPENDIX C: NESTING BIRDS: SPECIES-SPECIFIC BUFFERS FOR PG&E ACTIVITIES

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.

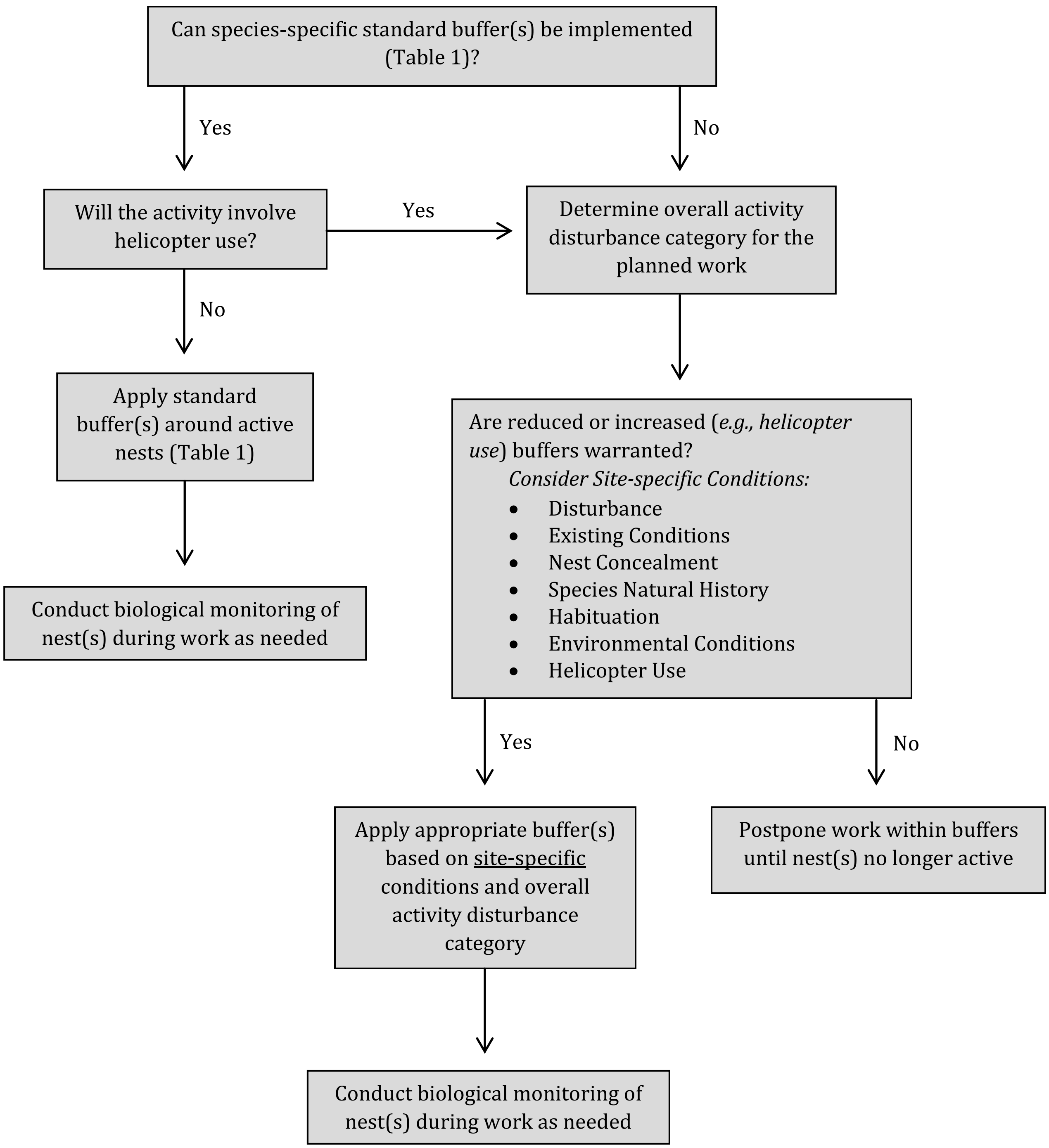
Nest Buffer Implementation Guidelines

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

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)
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

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)
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

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)
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

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)
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

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)
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

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)
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

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)
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

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)
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

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)
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

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)
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

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)
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

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)
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

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)
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

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)
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.

APPENDIX D: NATIVE AMERICAN HERITAGE COMMISSION CORRESPONDENCE

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390

May 3, 2012

Steven Treffers
SWCA Environmental Consultants
150 S. Arroyo Parkway, 2nd Floor
Pasadena, CA 91105

Sent by Fax: 626-240-0607
Number of Pages: 2

Re: PG&E Humboldt #1 60kV Reconductoring Project, Humboldt County.

Dear Mr. Treffers:

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

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

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Humboldt County
May 2, 2012

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(707) 668-5101 ext 329
707-668-4272

Wiyot Tribe
Ted Hernandez, Chairperson
1000 Wiyot Drive — Wiyot
Loleta, CA 95551
(707) 733-5055
(707) 733-5601 Fax

Wiyot Tribe
Andrea Davis, Environmental Coordinator
1000 Wiyot Drive — Wiyot
Loleta, CA 95551
stephen@wiyot.us
(707) 733-5055
(707) 733-5601 Fax

Wiyot Tribe THPO
Helene Rouvier, Tribal Historic Preservation Officer
1000 Wiyot Drive — Wiyot
Loleta, CA 95551
cultural@wiyot.us
(707) 733-5055
(707) 733-5601 Fax

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

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed PGE Humboldt #1 60kV Reconductoring project, Humboldt County

SAMPLE

May 11, 2012

Ruth M. Shriber
City of Eureka
531 K Street
Eureka, CA 95501

RE: Cultural Resources Study for the PG&E Humboldt Bay – Humboldt #1 60 kV Reconductoring in Humboldt County, California

Dear Ms. Shriber:

Pacific Gas and Electric Company (PG&E) is conducting a cultural resources study for the Humboldt Bay – Humboldt #1 60 kV Reconductoring Project located in Humboldt County, California. PG&E is conducting cultural resources studies in accordance with Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA).

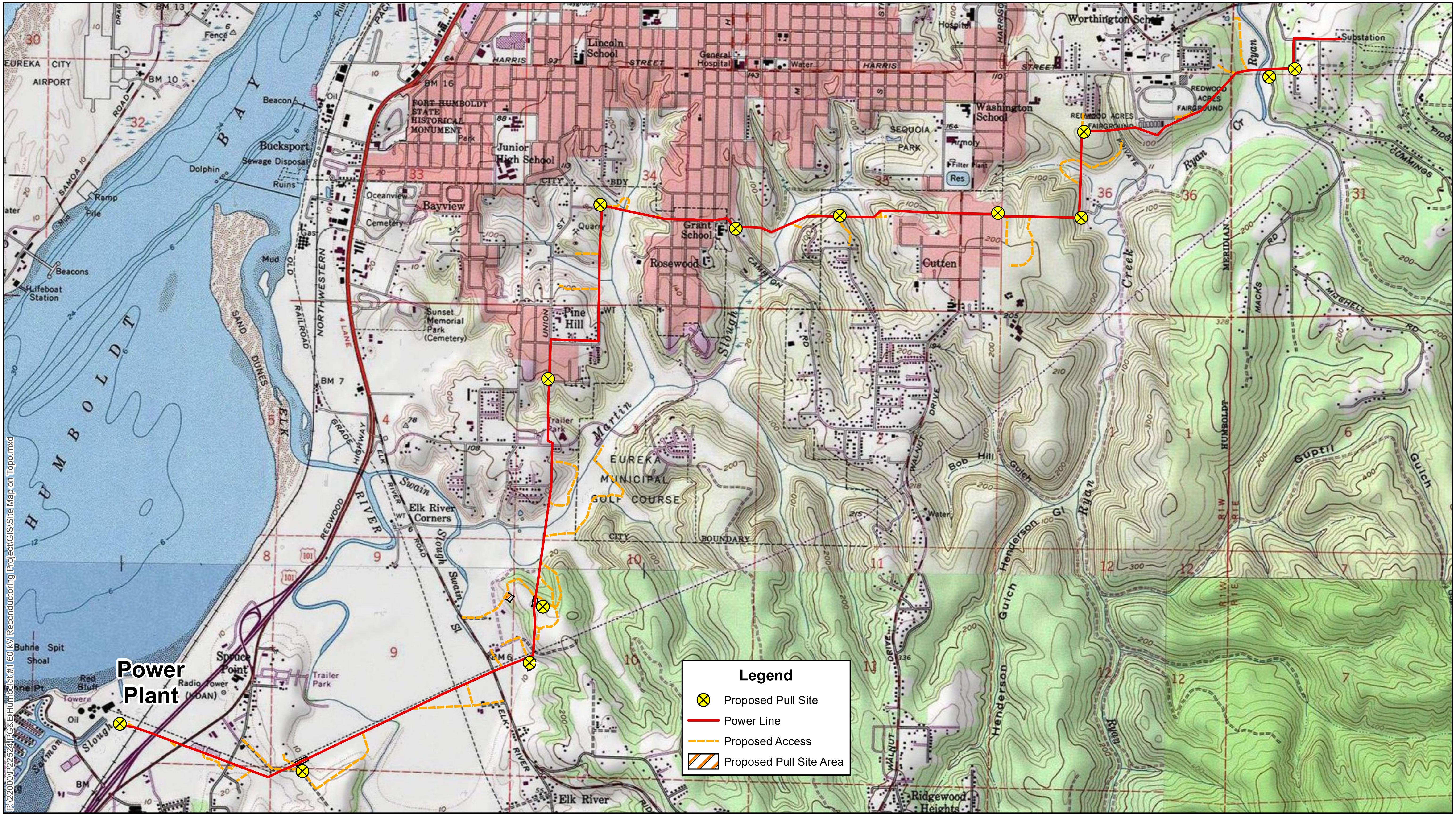
The project is located in unincorporated Humboldt County and within the City of Eureka and runs roughly southwest-northeast from Humboldt Bay west of Spruce Point to the east side of Eureka near Myrtle Avenue. The 8.4-mile line connects Humboldt Bay Power Plant to the Humboldt Substation (see enclosed project location map). The project proposes to replace existing deteriorated conductor and existing poles to accommodate proposed heavier conductor.

The purpose of this letter is to request your input on potential and/or known designated significant cultural resources in or near the project area. We take the work of protecting cultural resources very seriously, and are making every effort to identify the existence of potential historic properties or historical resources prior to completion of environmental documentation. We are also reviewing all previously identified cultural resources, including the Historic Property Data File for Humboldt County and the records maintained at the North Coastal Information Center (NCIC).

If you have knowledge of any cultural resources that may exist within or near the project area, please contact me via telephone, at (925) 415-6576 or email, S2CM@pge.com, or in writing at the above address at your earliest convenience. Thank you for your assistance.

Sincerely,

Stephanie Cimino, Cultural Resources Specialist
Enclosure: Project Location Map



0 1,000 2,000 4,000 Feet

N S E W

Privileged and Confidential for Internal Use Only

PG&E Humboldt #1 60 kV Reconductoring Project
PG&E Constructability Review

SWCA ENVIRONMENTAL CONSULTANTS

Steven Treffers

From: Janet Eidsness <JEidsness@bluelakerancheria-nsn.gov>
Sent: Monday, June 04, 2012 1:16 PM
To: S2CM@pge.com; Steven Treffers
Cc: erikacollins@brb-nsn.gov
Subject: Blue Lake THPO comments on Humboldt #1 60 kV Reconductoring Project, Humboldt County

Hello Stephanie & all,

I received PG&E's letter dated 5/16/12 noticing our office about the subject cultural resources survey project and requesting information about known tribal resources along or near the proposed 8.4 mile route. Today, I also received a phone call from Kristin with SWCA in Los Angeles, who asked if I'd received the letter notice.

A check of our confidential cultural resources inventory revealed no known Wiyot sites along or near the project area. It does cross areas that appear to be sensitive, however (slough margins, etc.)

Please keep me informed about your field and research findings (negative or positive), so I will have the opportunity to consult further as needed to avoid impacts to significant tribal resources.

Regards,

Janet P. Eidsness, M.A., RPA
Tribal Heritage Preservation Officer (THPO)
Blue Lake Rancheria
P.O. Box 428 (428 Chartin Road)
Blue Lake, CA 95525
Office (707) 668-5101 ext. 1037
Fax (707) 668-4272
jeidsness@bluelakerancheria-nsn.gov
cell (530) 623-0663 jpeidsness@yahoo.com

BEAR RIVER BAND of ROHNERVILLE RANCHERIA
27 BEAR RIVER DR. LOLETA, CA 95551 707.733.1900, fax 733.1972

May 29, 2012

Stephanie Cimino
Cultural Resources Specialist
3401 Crow Canyon Road
San Ramon, CA 94583

RE: Cultural Resources Survey for the PG&E Humboldt Bay – Humboldt #1 60 kV Reconductoring Project in Humboldt County, California

Ms. Cimino,

This letter is in response to your letter dated May 16, 2012 and received May 21, 2012 regarding the cultural resources study for the Humboldt Bay – Humboldt #1 60 kV Reconductoring Project, located near and within the city of Eureka in Humboldt County.

Thank you for contacting the Bear River Band of Rohnerville Rancheria regarding this project. Your letter indicated that SWCA Environmental Consultants (SWCA), on behalf of PG&E, requested a search of the Sacred Lands File by the Native American Heritage Commission. The results of this search were that "The NAHC SLF search did not identify any Native American cultural resources within a one-half mile radius of the proposed project area". Since a search of the Sacred Lands File would not be expected to identify all cultural resources, but only designated Sacred sites, it would be appreciated if PG&E could confirm that a records search was also performed at the appropriate regional office of the California Historical Resources Information Center.

A search of the Bear River's confidential GIS files has identified three Wiyot sites recorded within one half mile of the project area. It is Bear River's understanding that SWCA conducted the archaeological survey the week of May 21st. It is unfortunate that Bear River received an initial consultation letter from PG&E after the consultant had already begun the fieldwork; the Tribe would have appreciated the opportunity to accompany the consultant during portions of the fieldwork nearest known Wiyot sites and in sensitive areas.

Should there be any further fieldwork conducted for this project, please contact the Bear River Band of Rohnerville Rancheria prior to scheduling. Additional, please provide a copy of the consultant's report to the Tribe at your earliest convenience.

If you have any questions, please feel free to contact me at 707-733-1900 ext 233 or erikacollins@brb-nsn.gov.

Sincerely,

X Erika Collins

Erika Collins
Tribal Historic Preservation Officer

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710
Fax (916) 373-5471

December, 4, 2017

Leslie Sakowicz
PG&E

Email to: lssh@pge.com

RE: Humboldt 60kv, Humboldt County

Dear Ms. Sakowicz,

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results indicate Native American cultural sites are present. Please contact the Wiyot Tribe. Other sources for cultural resources should also be contacted for information regarding known and/or recorded sites.

Enclosed is a list of Native American tribes who may also have knowledge of cultural resources in the project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at frank.lienert@nahc.ca.gov.

Sincerely,

Frank Lienert
Associate Governmental Program Analyst

Native American Heritage Commission
Native American Contacts
12/04/2017

Big Lagoon Rancheria
Virgil Moorehead, Chairperson
P. O. Box 3060 — Yurok, Tolowa
Trinidad, CA 95570
vmoorehead@earthlink.net
(707) 826-2079
(707) 826-1737 - Fax

Blue Lake Rancheria
Claudia Brundin, Chairperson
P.O. Box 428 — Wiyot, Yurok, Tolowa
Blue Lake, CA 95525
bmobbs@bluelakerancheria-nsn.gov
(707) 668-5101
(707) 668-4272 Fax

Hoopa Valley Tribe
Ryan P. Jackson, Chairperson
P.O. Box 1348 — Hoopa - Hupa
Hoopa, CA 95546
(530) 625-4211
(530) 625-4594 Fax

Karuk Tribe
Russell Attebery, Chairperson
P.O. Box 1016 — Karuk / Karok
Happy Camp, CA 96039
(530) 493-1600
(530) 493-5322 - Fax

Bear River Band of the Rohnerville Rancheria
Barry Brenard, Chairperson
266 Keisner Road — Wiyot, Mattole
Loleta, CA 95551
(707) 733-1900
(707) 733-1727 Fax

Round Valley Indian Tribes of the Round Valley Reservation
James Russ, President
77826 Covelo Road — Yuki ; Nomlaki, Pit River, Pomo, Concow, Wailaki; Wintun
Covelo, CA 95428
tribalcouncil@rvit.org
(707) 983-6126
(707) 983-6128 Fax

Wiyot Tribe
Ted Hernandez, Chairperson
1000 Wiyot Drive — Wiyot
Loleta, CA 95551
ted@wiyot.us
(707) 733-5055
(707) 733-5601 Fax

Cher-Ae Heights Indian Community of the Trinidad Rancheria
Garth Sundberg Sr., Chairperson
P.O. Box 630 — Yurok, Karuk, Tolowa, Wiyot
Trinidad, CA 95570-06
gsundberg@TrinidadRancheria.com
(707) 677-0211 Office
(707) 677-3921 Fax

Yurok Tribe of the Yurok Reservation
Thomas O'Rourke, Chairperson
PO Box 1027 — Yurok
Klamath, CA 95548
torouroke@yuroktribe.nsn.us
(707) 482-1350
(707) 482-1377

Yurok Tribe of the Yurok Reservation
Robert McConnell, THPO
HC 67 P.O. Box 196, Highwa 9 — Yurok
Hoopa, CA 95546
rmcconnell@yuroktribe.nsn.us
(707) 498-2536
(530) 625-4130 x1629
(707) 482-1377 Fax

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessments for the
Humboldt 60kv, Humboldt County

Native American Heritage Commission
Native American Contacts
12/04/2017

Tsunungwe Council
Paul Ammon, Chairperson
P.O. Box 373 — Southern Hoopa
Salyer, CA 95563
530-629-4758
(530) 629-3356 FAX

Blue Lake Rancheria
Janet Eidsness, Historic Preservation Officer
P.O. Box 428 — Wiyot
Blue Lake, CA 95525-04 — Yurok
jeidsness@bluelakerancheria-nsn.gov — Tolowa
(707) 668-5101
(530) 623-0663 - Cell
707-668-4272 - Fax

Yurok Tribe of the Yurok Reservation
NAGPRA Coordinator
P.O. Box 1027 — Yurok
Klamath, CA 95548
(707) 482-1350
(707) 954-5355
(707) 482-1377

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessments for the
Humboldt 60kv, Humboldt County

SAMPLE

January 18, 2018

Karuk Tribe
Russell Atteberry, Chairperson
P.O.Box1016
Happy Camp, CA 96039

RE: Cultural Resources Inventory Report for the PG&E Humboldt Bay – Humboldt #1 60 kV Reconductoring Project in Humboldt County, California

Dear Mr. Atteberry:

Pacific Gas and Electric (PG&E) is conducting a cultural resources study for the Humboldt Bay – Humboldt #1 60 kV Reconductoring Project. The project area is located in unincorporated Humboldt County and within the City of Eureka and falls within the USGS 7.5-minute Arcata South, Eureka, and Fields Landing quadrangle maps (see enclosed project location map). The proposed project entails the replacement of 8.4 circuit miles of existing deteriorated conductor and wood poles that run roughly southwest-northeast from Humboldt Bay west of Spruce Point to the east side of Eureka near Myrtle Avenue. The line connects Humboldt Bay Power Plant to the Humboldt Substation (see enclosed project location map).

As part of the process of identifying cultural resources issues for this project, PG&E contacted the Native American Heritage Commission (NAHC) and requested a Sacred Lands File (SLF) search and a list of Native American individuals and/or tribal organizations that may have knowledge of cultural resources in or near the project area. The NAHC SLF search did identify a Native American cultural resource within or adjacent to the project footprint and asked PG&E to contact the Wiyot Tribe. Additionally, the NAHC recommended that we coordinate with you directly regarding your knowledge of the presence of cultural resources within or adjacent to the project footprint.

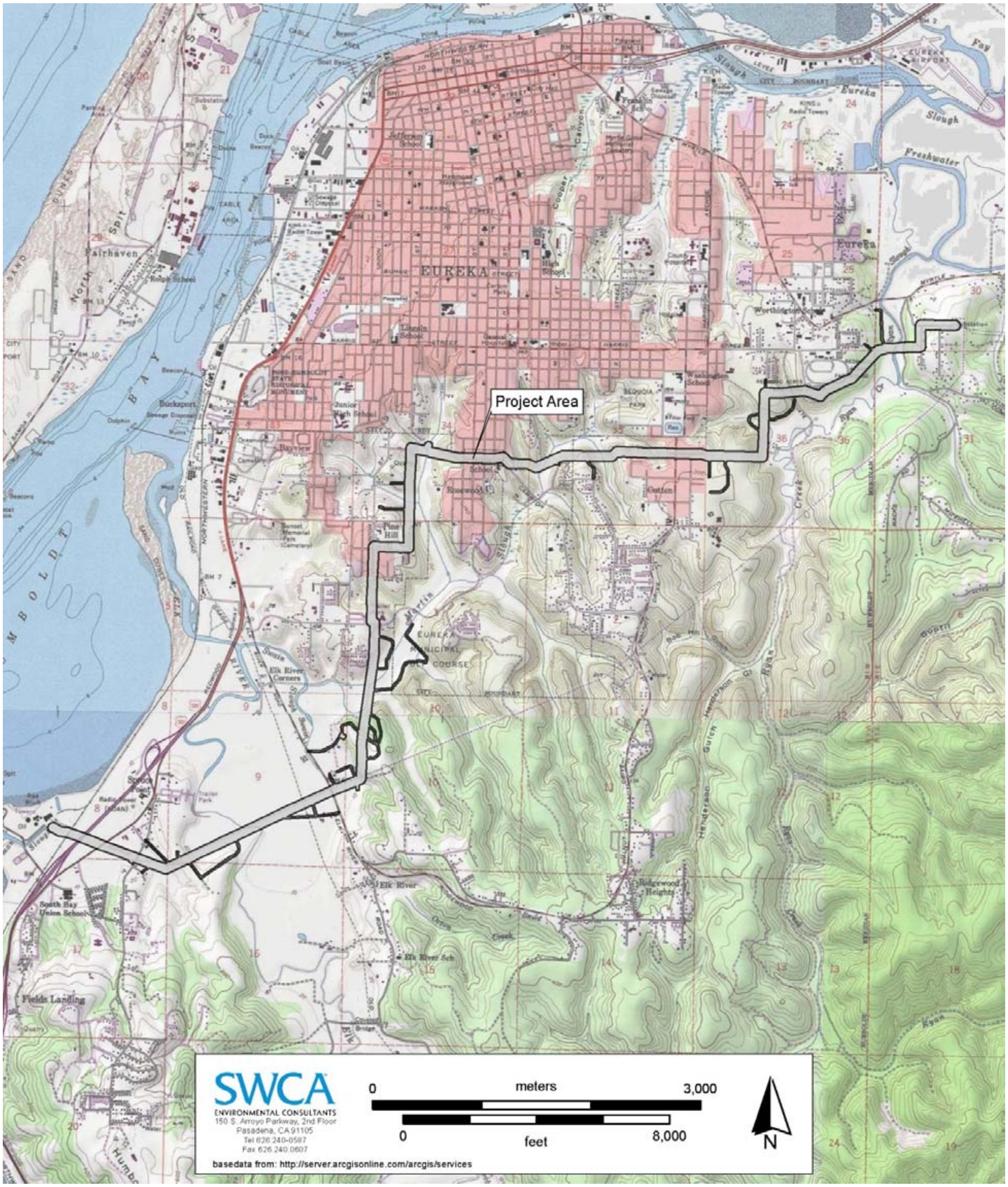
In addition to sacred lands search and contacts request, a records search was conducted. No previously recorded archaeological resources were identified as a result of that research. For the purposes of the project, the project footprint was subject to intensive pedestrian survey and study efforts, and as a result, no archaeological resources were identified.

If you have knowledge of any cultural resources that may exist within or near the project area, please contact me at (916) 923-7094 or at lssh@pge.com. Thank you for your assistance.

Sincerely,

L. Sakowicz

Leslie Sakowicz



Project Location Map

APPENDIX E: LIST OF PREPARERS

LIST OF PREPARERS

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:

Section	Primary Consultant(s)	Qualifications
PEA Project Management and Project Description	Janet Liver	• Senior Project Manager/Program Manager at TRC • B.Sc. Agr., Resource Management, University of Guelph
3.1 – Aesthetics	Marsha Gale	• Managing Principal at Environmental Vision • M.A. Landscape Architecture, University of California at Berkeley • M.A. City & Regional Planning, University of California at Berkeley • B.A. Landscape Architecture, University of Illinois at Champaign/Urbana
3.2 – Agricultural and Forest Resources	Jacqueline Milbank	• Environmental Planner at TRC • B.S. Environmental Science, University of Wisconsin • B.S. Environmental Policy and Planning, University of Wisconsin
3.3 – Air Quality	Casey Anderson	• Environmental Scientist at TRC • M.S. Earth Science, University of New Hampshire • B.S. Atmospheric Science, University of Washington
3.4 – Biological Resources	Holly Burger	• Wildlife Biologist at Stillwater Sciences • B.S. Wildlife Biology, Baldwin Wallace University
3.5 – Cultural Resources	Patrick Brunmeier	• Cultural Resources Specialist, Quercus Consultants • M.A. Social Science (Anthropology), Humboldt State University • B.A. Anthropology, Humboldt State University
3.6 – Geology and Soils	Carrie Plath	• Senior Staff Geologist at TRC • B.S. Geology & Geophysics, PG, University of Hawaii
3.7 – Greenhouse Gas Emissions	Karin Greenacre	• Senior Project Manager at TRC • M.S. Chemical Engineering, University of Arizona • B.S. Chemical Engineering, Stanford University
3.8 – Hazards and Hazardous Materials	Jacqueline Milbank	• Environmental Planner at TRC • B.S. Environmental Science, University of Wisconsin • B.S. Environmental Policy and Planning, University of Wisconsin
3.9 – Hydrology and Water Quality	Molly Sandomire	• Project Manager/Biologist at TRC • M.S. Geography and Environmental Engineering, John Hopkins • B.S. Zoology, University of Washington
3.10 – Land Use and Planning	Jacqueline Milbank	• Environmental Planner at TRC • B.S. Environmental Science, University of Wisconsin • B.S. Environmental Policy and Planning, University of Wisconsin
3.11 – Mineral Resources	Carrie Plath	• Senior Staff Geologist at TRC • B.S. Geology & Geophysics, PG, University of Hawaii
3.12 – Noise	Steve Huvane	• Senior Project Engineer at TRC • B.S. Civil Engineering, Cal Poly San Luis Obispo
3.13 – Population and Housing	Jacqueline Milbank	• Environmental Planner at TRC • B.S. Environmental Science, University of Wisconsin • B.S. Environmental Policy and Planning, University of Wisconsin

Section	Primary Consultant(s)	Qualifications
3.14 – Public Services	Jacqueline Milbank	• Environmental Planner at TRC • B.S. Environmental Science, University of Wisconsin • B.S. Environmental Policy and Planning, University of Wisconsin
3.15 - Recreation	Jacqueline Milbank	• Environmental Planner at TRC • B.S. Environmental Science, University of Wisconsin • B.S. Environmental Policy and Planning, University of Wisconsin
3.16 – Transportation and Traffic	Jacqueline Milbank	• Environmental Planner at TRC • B.S. Environmental Science, University of Wisconsin • B.S. Environmental Policy and Planning, University of Wisconsin
3.17 – Utilities and Service Systems	Jacqueline Milbank	• Environmental Planner at TRC • B.S. Environmental Science, University of Wisconsin • B.S. Environmental Policy and Planning, University of Wisconsin
3.18 – Mandatory Findings of Significance and Cumulative Impacts	Jacqueline Milbank	• Environmental Planner at TRC • B.S. Environmental Science, University of Wisconsin • B.S. Environmental Policy and Planning, University of Wisconsin