Draft Mitigated Negative Declaration

Helms Pumped Storage Project,
FERC Project No. 2735

July 31, 2025

Prepared for:

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Draft Mitigated Negative Declaration for the Helms Pumped Storage Project

Pursuant to:

California Environmental Quality Act, Public Resources Code section 21000 et seq. (CEQA); California Code of Regulations, title 14, section 15000 et seq. (CEQA Guidelines)

Lead Agency:

State Water Resources Control Board

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Acronyms / Abbreviations

°C	Celsius
µmhos/cm	micromhos per centimeter
µS/cm	microsiemens per centimeter
ac	acre
ac-ft	acre foot
APLIC	Avian Powerline Interaction Committee
APP	PG&E's Avian Protection Program
BEE	triclopyr butoxyethyl ester
BGEPA	Bald and Golden Eagle Protection Act
BLM	United States Department of the Interior, Bureau of Land Management
BLMS	Sensitive species on BLM-administered land
BMPs	best management practices
BOR	United States Department of the Interior, Bureau of Reclamation
CAISO	California Independent System Operator
CALFIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CDPR	California Department of Pesticide Regulation
CEDEN	California Environmental Data Exchange Network
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO_2e	carbon dioxide equivalents
CPUE	Catch per Unit Effort
CRHR	California Register of Historical Resources

CRPR	California Rare Plant Rank
CSDs	Community Services Districts
CVRWQCB	California Regional Water Quality Control Board Central Valley Region
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
DOC	Department of Conservation
DPM	diesel particulate matter
DPS	Distinct Population Segment
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
ESA	Endangered Species Act
ESA FT	listed as threatened under the federal ESA
FCFPD	Fresno County Fire Protection District
FE	listed as endangered under the federal ESA
FERC	Federal Energy Regulatory Commission
FGDC	Federal Geographic Data Committee
FLA	Final License Application
FPA	Federal Power Act
FPT	proposed for listing as threatened under the federal ESA
FRA	Federal Responsibility Area
FSS	Forest Service sensitive species
FT	listed as threatened under the federal ESA
GHG	greenhouse gases
GSAs	Groundwater Sustainability Agencies
GSPs	Groundwater Sustainability Plans
GWh	gigawatt-hours
GWMPs	Groundwater Management Plans
GWP	global warming potential
H.T.	High Tension Line

HDCS	High Density Conductor System
Helms Project	Helms Pumped Storage Project
hp	horsepower
HPMP	Historic Properties Management Plan
HPTP	Historic Properties Treatment Plan
IPaC	Information for Planning and Consultation
IS	Initial Study
kV	kilovolt
kVA	kilovolt-ampere
L.T.	Low Tension Line
lbs	pounds
LMP	Land Management Plan
LOPs	limited operating periods
LRA	Local Responsibility Area
mg/L	Milligrams per liter
MND	Mitigated Negative Declaration
MOA	Memorandum of Agreement
msl	mean sea level
MW	megawatts
MWh	megawatt-hours
NAHC	Native American Heritage Commission
NBMP	Nesting Bird Management Plan
NFS	National Forest System
NMWSE	Normal Maximum Water Surface Elevation
No.	Number
NPS	National Park Service
NRI	Nationwide Rivers Inventory
NTUs	nephelometric turbidity units
NWI	National Wetlands Inventory

O	Open Conservation Land Use
O&M	operation and maintenance
O_3	ozone
OEHHA	California Office of Environmental Health Hazard Assessment
OHVs	off highway vehicle
PAD	Pre-application Document
PCA	Pest Control Advisor
PCE	Primary constituent elements
PCR	Pest Control Recommendation
PF	Power factor
PG&E	Pacific Gas and Electric Company
PM	Project Manager
PM&E	Protection Mitigation and Enhancement
ppm	parts per million
PRC	Public Resources Code
PUP	Pesticide Use Proposal
R-C	Resource and Conservation
RM	river mile
ROS	Recreation Opportunity Spectrum
ROW	Rights-of-way
RPS	Renewables Portfolio Standard
RWQCB	Regional Water Quality Control Boards
s.u.	standard units
SB	Senate Bill
SA	Special animal
SCADA	Supervisory Control and Data Acquisition
SCAQMD	South Coast Air Quality Management District
SCC	Species of Special Concern
SE	listed as endangered under the CESA

SFP	CDFW Fully Protected Species
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Officer
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLF	Sacred Lands File
SMA	Special Management Area
SNF	Sierra National Forest
sq-mi	square miles
SR	State listed as rare under the Native Plant Protection Act
SRA	State Responsibility Area
SSC	CDFW Species of Special Concern
SSURGO	Soil Survey Geographic Database
ST	listed as threatened under the CESA
State Water Board	California State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
tpy	tons per year
Tulare Lake Basin Plan	Central Valley Regional Water Quality Control Board's Water Quality Control Plan for the Tulare Lake Basin
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UTV	utility task vehicles
VMT	vehicle miles travelled
WMP	Waste Management Plan
WSE	Water surface elevation

1.0 Introduction

1.1 Background

This Draft Mitigated Negative Declaration (MND) reflects an environmental analysis required by the California Environmental Quality Act (CEQA) regulations (Pub. Resources Code §21000 et seq.) and the CEQA Guidelines (Cal. Code Regs., tit. 14, §15000 et seq.) for the California State Water Resources Control Board's (State Water Board) issuance of water quality certification for the relicensing of the Federal Energy Regulatory Commission (FERC) Project No. 2735 Helms Pumped Storage Project (Helms Project) as proposed by Pacific Gas and Electric (PG&E) in their Final License Application (FLA) (Proposed Project) filed with FERC on April 18, 2024.

For the purposes of this CEQA analysis, the discretionary permit review process being considered by the State Water Board is issuance of a water quality certification, pursuant to section 401 of the federal Clean Water Act for the Proposed Project. The water quality certification will include appropriate conditions to ensure that the Proposed Project is operated in a manner that is protective of water quality, the designated beneficial uses of water, and in compliance with California water quality standards.

The Proposed Project under CEQA includes the continuation of existing operation and maintenance activities and proposed changes, including new and modified environmental measures, modifications to the existing FERC Project Boundary, and modification of existing recreational facilities. Section 2 provides a description of the existing and Proposed Project.

1.2 Intent and Scope of this Document

CEQA requires that public agencies analyze and acknowledge the environmental consequences of their actions and consider alternatives and mitigation measures that could avoid or reduce significant potential adverse impacts to the environment when avoidance or reduction is feasible.

This MND reflects an evaluation of the Proposed Project's environmental effects at a project level (Cal. Code Regs., tit. 14, § 15378). The State Water Board, as the CEQA Lead Agency, will consider the Proposed Project's potential environmental impacts when determining whether to approve them. The intent of this MND is to provide the public and decision-making agencies with information about the environmental impacts that could result from implementation of the Proposed Project.

This MND describes the Proposed Project and its environmental setting, including existing conditions; identifies the Proposed Project's potential environmental impacts, and presents mitigation measures that would be implemented to avoid, reduce, or mitigate potentially significant impacts.

1.3 Public Review Process

The CEQA compliance process provides an opportunity for agencies, other stakeholders, and the general public to comment on a proposed project's potential environmental effects. CEQA requires public disclosure of information about the Proposed Project and seeks to foster public participation and informed decision making.

2.0 Project Description

2.1 Proposed Project Description and Setting

PG&E owns and operates the existing Helms Pumped Storage Project, FERC Project No. 2735 (Helms Project), located in Fresno and Madera counties, California, approximately 50 miles (mi) northeast of the City of Fresno (Figure 2-1). The Helms Project hydropower facilities have a combined capacity of 1,212 megawatts (MW) and have been in operation since 1984. The current FERC license was issued May 18, 1976, and expires April 30, 2026. The Helms Project is located on the North Fork Kings River and Helms Creek.

The Helms Project is a pumped storage project that transfers water to and from Courtright Lake and Lake Wishon for power generation and water storage. Courtright Lake (upper reservoir) and Lake Wishon (lower reservoir), impounded by Courtright Dam and Wishon Dam, respectively, which are licensed facilities of the Haas-Kings River Hydroelectric Project, FERC Project No. 1988[1,2]. Courtright Lake has a usable storage area of approximately 123,184 ac-feet (ac-ft) and normal maximum and minimum water surface elevations of 8,184 feet and 8,050 feet, respectively. Lake Wishon has a usable storage area of approximately 128,606 ac-ft and normal maximum and minimum water surface elevations of 6,550 feet and 6,429 feet, respectively.

To generate power, water is released from Courtright Lake through the Courtright Lake Intake-Discharge Structure (89 feet wide by 58.5 feet high), Tunnel 1, Tunnel 2, and the penstock, into the Helms Powerhouse and is discharged through Tunnel 3 and the Wishon Intake-Discharge Structure (78 feet wide by 51 feet high) into Lake Wishon. During periods of low energy demand, water is pumped through these facilities in reverse (i.e., from Lake Wishon to Courtright Lake). The Helms Project does not include any dams or reservoirs, and releases from Courtright Dam and Wishon Dam are managed as part of the Haas-Kings River Hydroelectric Project. On average, the Helms Project generates 744,749 megawatt-hours (MWh) of electricity per year.

The Helms Project is located in the Kings River Basin upstream of the United States Department of Defense, Army Corps of Engineers' (USACE) Pine Flat Dam. The North Fork Kings River begins at the White Divide in the John Muir Wilderness at an elevation of approximately 12,000 feet above mean sea level (msl) and travels 40 miles, joining the Kings River at an elevation of 973 feet above msl. Almost all precipitation occurs as rain in the North Fork Kings River basin, typical to the central Sierra Nevada.

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1 FERC issued a license to PG&E for the Haas-Kings River Hydroelectric Project on March 18, 2001, with a term expiring on February 28, 2041.

2 Article 46 of FERC's May 18, 1976, Order Issuing Major License and Amending License for Constructed Project for the Helms Pumped Storage Project states "*The Licensee is authorized to use the reservoirs of Project 1988 in the operation of Project 2735 and shall coordinate operation of the project with that of Project 1988.*" This is consistent with FERC's December 31, 1986, Order Approving "As-Built" Exhibits, which states that the Project consists of "*an intake-discharge structure in each of the reservoirs of Project 1988* . . .".

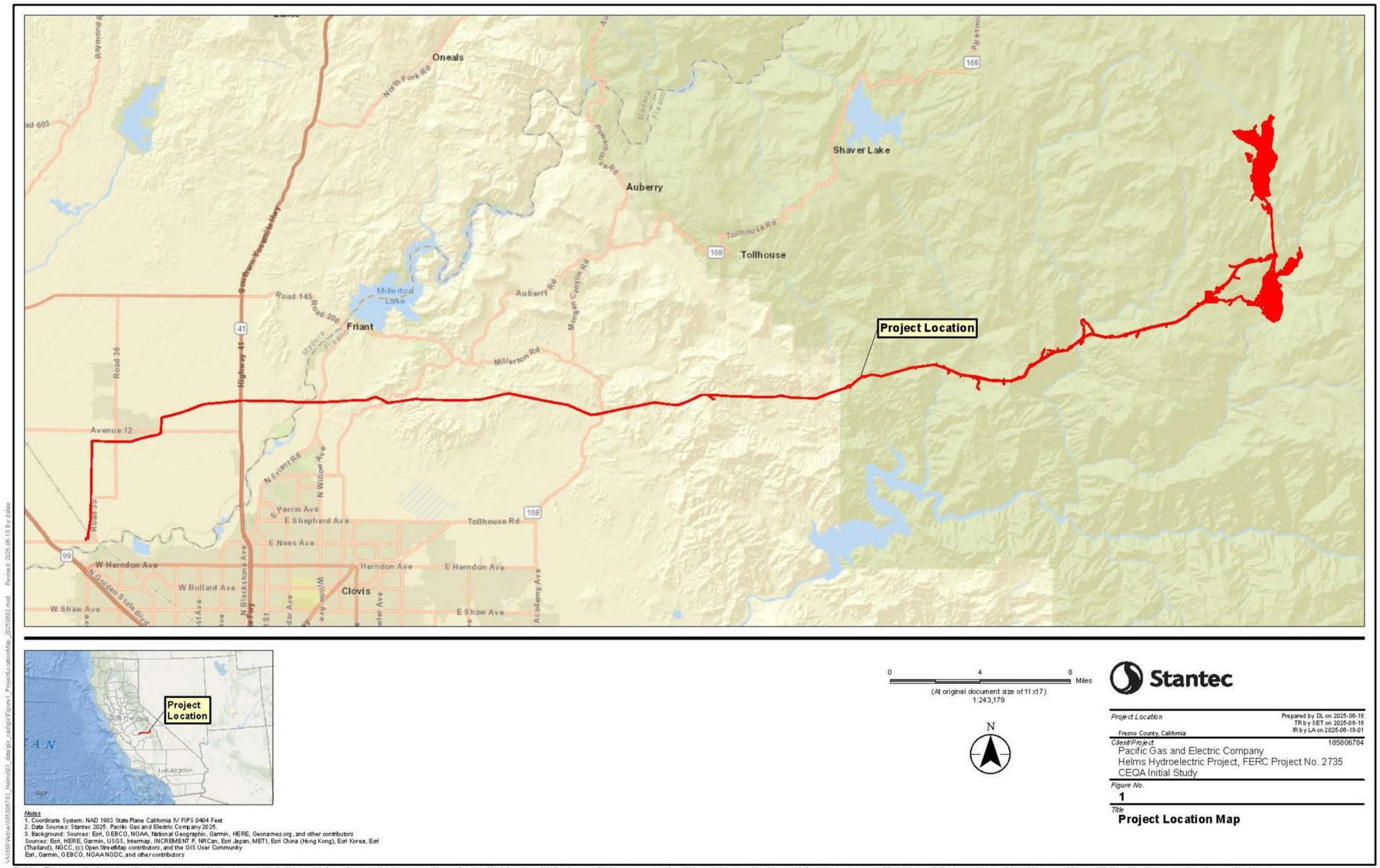

Figure 2-1. Helms Pumped Storage Project Location Map

2.1.1 EXISTING PROJECT FACILITIES

The Helms Project includes various components such as intake and water conveyance systems, powerhouse, switchyards, transmission lines, recreational facilities, access roads, trails, ancillary support facilities, and a wildlife habitat management area (Appendix B). It generates significant electricity annually, with a powerhouse generating an average of 744,749 MWh per year from 2015-2022. The Helms Project also supports California's greenhouse gas reduction mandates by providing essential ancillary services.

The Helms Project facilities and features include:

- **Intake and water conveyance systems.** The Helms Project includes a lower Intake-Discharge Structure in Lake Wishon on the North Fork Kings River and an upper Intake-Discharge Structure in Courtright Lake on Helms Creek, a tributary to the North Fork Kings River.
- **Powerhouse and switchyards.** The Helms Project includes the underground Helms Powerhouse and the aboveground Helms switchyard.
- **Transmission and distribution lines.** The Helms Project includes an approximately 60.7-mile 230 kilovolt (kV) transmission line that runs from the Helms switchyard to the non-Project Gregg Substation and several 21 kV distribution lines.
- **Recreational facilities.** The Helms Project includes several recreational facilities near Courtright Lake and Lake Wishon.
- **Access roads and trails.** Roads and trails within the FERC Project boundary include 317 segments totaling 37.53 mi. These include 34.82 miles (mi) (301 segments) for trucks, 1.63 mile (6 segments) for utility task vehicles (UTVs), and 1.08 mile (10 segments) of pedestrian trails. The majority of these roads and trails are associated with the Helms-Gregg 230 kV transmission lines. Roads and trails associated solely with the Helms Project recreational facilities are considered part of the recreational facilities and not listed as Helms Project roads or trails.
- **Ancillary and support facilities such as a headquarters building that includes employee housing.** The Helms Project includes several ancillary and support features including a headquarters building with employee housing, the Helms Support facility, and several helicopter pads.
- **An 80-ac wildlife habitat management area.** The Helms Project includes an approximate 80-ac Wildlife Management Area located on PG&E land. The Wildlife Management Area is dedicated to wildlife habitat management and is managed in accordance with the 1989 Wildlife Habitat Management Plan. In conformance with the plan, the area is managed by the Helms Wildlife Management Team that consists of California Department of Fish and Wildlife (CDFW), PG&E, and the Forest Service.

2.1.2 PROJECT GENERATION

From 2015 through 2022, the Helms Powerhouse generated an average of approximately 744,749 megawatt-hours (MWh) of electricity per year with an average annual plant factor of 0.23. The annual minimum gross generation was 480,523 MWh in 2015 and the annual maximum gross generation was

957,234 MWh in 2021. The energy for pumpback from 2015 through 2022 averaged 1,070,693 MWh per year. The annual minimum use was 729,005 MWh in 2015 and the annual maximum was 1,343,268 MWh in 2021.

2.1.3 EXISTING HELMS PROJECT OPERATIONS AND MAINTENANCE

Routine operations and maintenance activities involve powerhouse inspections, vegetation, pest, sediment, road and trail maintenance, as well as maintaining recreational facilities and transmission lines. The Helms Project operates under existing FERC license articles and water rights, ensuring the reservoir levels are maintained, especially during the summer. The Helms Powerhouse staff work consistently to manage Project facilities and operations throughout the year, contributing to energy conservation and renewable resource prioritization. Routine operation and maintenance (O&M) activities are described below.

2.1.3.1 Powerhouse Automatic and Semi-Automatic Operations

PG&E operates the Helms Powerhouse using a remote-controlled Supervisory Control and Data Acquisition (SCADA) system from the Fresno Operating Center, staffed 24/7. Additionally, the Helms Project can be manually operated on-site. Power facilities are monitored continuously, and alarms alert operators to out-of-range parameters, prompting further action. Helms Project operations staff are on duty daily, while maintenance staff work Monday to Friday. O&M personnel routinely visit the facilities to identify and correct potential problems. The center coordinates necessary repairs based on the severity of the issues discovered during regular inspections.

2.1.3.2 Vegetation Management

The management of woody debris generated from work activities will be guided by the parameters of routine O&M vegetation management activities and site constraints, employing various strategies. When feasible and when access allows, woody debris may be removed from the site, chipped and removed, or chipped and spread on site to mitigate other effects. If debris is not chipped or removed, it may be lopped and scattered. This practice involves cutting and distributing debris into small pieces close to the ground, thereby accelerating its decomposition rate. Debris may also be piled for burning, either at the landowner's request or at PG&E's discretion on PG&E property.

Wood management pertains to the treatment of tree stems or logs once the limbs have been removed, including any material too large to be treated as debris. Wood can either be left on site or removed. If left on site, logs are cut so that the bole is as close to the ground as possible, or they may be piled for future removal or burning. If removed, wood is transported offsite to a disposal facility, sawmill, or staging location. These activities might require permits or landowner approvals, which PG&E will obtain prior to wood removal.

Vegetation management within the Hydro Operation Area and the Transmission Corridor is conducted annually. Integrated vegetation management activities, such as herbicide application for incompatible vegetation, are conducted along the Transmission Corridor and Project roads on rotations ranging from two to five years, depending on inspection outcomes.

2.1.3.3 Pest Management and Herbicide Application

PG&E implements integrated pest management approaches, including non-chemical methods and pesticides, to control vertebrate pest populations that threaten Helms Project structures or human health and safety. Pest control methods include inspecting interior and exterior areas of Helms Project facilities to identify significant pest populations; using bait stations, traps, and physical exclusion methods year-round for interior protection; and applying exterior pest control techniques based on climate, target species, and food availability. Exterior methods include ground squirrel bait stations, burrow baiting, physical exclusion with sand slurry, habitat modification through vegetation management, non-rodenticide traps, and compressed carbon monoxide gas.

Non-restricted rodenticides, registered with the California Department of Pesticide Regulation (CDPR), are used inside control rooms and unoccupied buildings. Zinc phosphide, registered with CDPR and proposed for exterior use, is preferred due to its fast-acting nature and minimal risk of secondary poisoning. Rodenticide applications are supervised by a registered Pest Control Advisor (PCA) and authorized under a Pesticide Use Proposal (PUP)/Pest Control Recommendation (PCR). Application methods for zinc phosphide include pre-baiting, bait placement into burrows, covering burrows, checking for dead carcasses, and monitoring activity. Additional mitigation measures, such as burrow blocking with liquified sand technology may be applied to further hinder rodents and isolate the bait.

PG&E uses herbicides during routine Project O&M activities as needed in conjunction with the manual vegetation management methods described above to inhibit growth and re-sprouting of incompatible species and invasive plants around Project facilities. Herbicides are required to provide the level of vegetation management necessary to ensure the safe and reliable operation of the Project. Spot treatments or larger-scale application may be used for control of incompatible vegetation using federally and California Environmental Protection Agency-registered herbicides. Pesticides will be disposed of according to the *Condition 4, Hazardous Substance Plan*. Herbicide application methods include, but are not limited to, pre-emergent, cut-stump, basal, frill/hack and squirt, and foliar applications. Most herbicide applications are implemented on foot using backpack applicators. All-terrain vehicles (ATVs) are used to a limited extent to serve as smaller satellite batch tank locations. In some instances (e.g., for bare-ground pre-emergent or selective herbicides), crews apply herbicide from ATVs via hand wands or low booms mounted on the vehicles. No applications are made with larger equipment (e.g., a tractor or modified four wheel-drive pickup truck fitted with application booms or high-pressure handguns). Herbicide applications are generally coordinated with other vegetation maintenance activities or on an as-needed basis during periods of the year when the application is most effective for vegetation maintenance. In the Hydro Operation Area, PG&E routinely applies two cycles of herbicides annually with additional applications as necessary. Herbicide application within the Transmission Corridor occurs less frequently (i.e., every two to five years), although cut stumps may be treated annually.

2.1.3.4 Sediment Management

PG&E conducts sediment management activities at drainage structures, ditches, culverts, and bridges. Maintenance includes cleaning drainage structures such as drains and bridges, ditch cleaning involving the removal of slide or slump material, culvert cleaning to restore flow patterns, and repair and maintenance of culvert and rock ford crossings. Bridge maintenance includes clearing debris, repair of scour or erosion, stabilization of bridge footings, and decking repair. These activities often require heavy

equipment and specific materials conforming to the structure being maintained to ensure safe water flow and bridge use.

2.1.3.5 Road Maintenance

Helms Project access roads are regularly inspected. Minor repairs are conducted on an as-needed basis and major repairs are implemented annually during late summer/fall. Minor Helms Project road maintenance generally includes the following types of activities: debris removal; basic repairs; repair, replacement, or installation of access control structures such as posts, cables, rails, gates, and barrier rock; and repair and replacement of signage. Major Helms Project road maintenance generally includes the following types of activities: placement or replacement of culverts and other drainage features; bridge deck replacement; grading; sealing; resurfacing; and road replacement. Vegetation management may be conducted concurrently with road and trail maintenance on an as-needed basis.

2.1.3.6 Trail Maintenance

Helms Project trails are regularly inspected during the course of routine Helms Project O&M activities. Maintenance is conducted as needed. Maintenance generally includes, but is not limited to, the following types of activities: debris removal; basic repairs, including minor brushing; maintenance of erosion control features, such as water bars; repair, replacement, or installation of access control structures such as barrier rock; and repair and replacement of signage. Vegetation management may be conducted independently or concurrently with trail maintenance on an as-needed basis.

2.1.3.7 Recreational Facility Maintenance

Helms Project recreational facilities are operated and maintained by PG&E, including day-to-day operation and maintenance activities, such as fee collection, cleaning restrooms and campsites, and garbage pick-up. In addition, PG&E is responsible for routine maintenance of fixed assets, including restroom buildings, fee stations, water delivery systems, and site amenities. Contractors or PG&E personnel complete heavy maintenance duties, as needed, at the facilities. These activities include the use of a grader, excavator, or backhoe (e.g., recreation road work, sign replacement and repair of water pipes). PG&E coordinates recreation-related maintenance activities with the Forest Service.

2.1.3.8 Transmission, Power, and Communication Line Maintenance

Transmission, power, and communication line maintenance includes replacement of damaged poles on an as-needed basis, transmission tower cleaning, concrete foundation repairs, and reconductoring and undergrounding work. New poles are placed in, or immediately adjacent to, previously existing holes using line trucks. Vegetation management is also conducted along transmission, power, and communication line corridors, and at repeaters.

Routine repair and maintenance activities are typically identified on an as-needed basis during facility patrols and inspections. These activities usually require at least a standard light-duty truck and bucket truck and may be performed while the line is energized (i.e., while the power lines are operating) or de-energized, depending on access, loading, and safety. These activities are typically of short duration (less than one day), require minimal staging space, and typically occur within the analysis area. Minor vegetation management (pole/tower clearing or pruning vegetation) may be needed to ensure safe access and facility clearance.

2.1.3.9 Debris and Trash Maintenance

PG&E inspects lands within the FERC Project Boundary to maintain them free of trash from O&M activities and recreation. Management of floating debris and sediment in Courtright Lake and Lake Wishon is conducted under the Haas-Kings River Hydroelectric Project, FERC Project No. 1988.

2.1.3.10 Routine Patrols and Inspections

PG&E's Helms Project O&M staff inspect non-linear facilities weekly and transmission lines monthly via helicopter or fixed-wing aircraft to identify and correct potential problems. Annual mechanical and electrical inspections ensure the integrity of generation and transmission facilities, and lead to scheduled maintenance, repairs, or equipment replacements by field crews. Patrol frequencies vary based on infrastructure accessibility, age, environmental conditions, and elevation, but occur at least annually. Rapid assessments after weather or fire events use aerial patrols with helicopters, fixed-wing aircraft, and unmanned aerial vehicles. Ground patrols typically use vehicles or foot patrols. Environmental factors like dirt, dust, bird activity, vandalism, wind severity, and conditions such as fires, floods, and earthquakes influence patrol frequency. Inspections focus on vegetation clearances, fire hazards, erosion, and structural conditions. Maintenance on Helms Project penstocks occurs as needed, with all valves operated annually to verify integrity. Crews aim to restore units as swiftly as possible during unplanned outages for market availability and grid stabilization.

2.1.3.11 Planned and Unplanned Outages

PG&E conducts annual planned outages at the Helms Powerhouse to perform annual maintenance, verify structural and functional integrity of the facilities, and identify conditions that may interrupt operations. This activity typically occurs in the fall or winter. During maintenance of the turbine-generator, the units are taken offline for approximately four weeks. Unplanned (forced) outages that impact the Helms Project’s power production may be caused by a variety of factors beyond PG&E’s control. “Momentary” outages may be caused by transmission interruptions. PG&E is normally able to quickly restore the Helms Project to service after these outages occur. Emergency outages (e.g., from equipment failure) may take longer to address.

2.1.3.12 Regulatory Requirements – FERC License Articles

The initial May 18, 1976, Order Issuing License for the Helms Pumped Storage Project included 62 articles, including 36 articles from FERC’s Form L-6, Terms and Conditions of License for Unconstructed Major Project Affecting Navigable Waters and Lands of the United States. An additional 14 articles were added to the license following construction and operation of the Helms Project for a total of 76 articles. Of these, PG&E considers Articles 20, 39, 40, 41, 42, 48, 53, 59, 60, 63, 67, 68, 69, 105, and 106 to be

"expired" or "out-of-date" because the articles pertain to an activity that has been completed or is no longer pertinent. As a result, the existing license contains 61 articles that PG&E considers to be "active." The general topic that each of the active articles addresses is listed in Table 2.1-1.

Table 2.1-1. List of Articles in the Existing FERC License for the Helms Pumped Storage Project

Article	Description	Article	Description
I	Compliance with license	33	United States transmission rights-of-way
2	No substantial changes without approval	34	Disposal of materials and vegetation
3	Conformity with exhibits	35	Operate license in good faith
4	FERC inspections	36	Use or occupancy
5	Acquire title in fee or land use for project	37	PG&E will not impair Federal Power Act (FPA)
6	Make good any defect of title	38	Annual charges
7	FERC determines cost of project	43	Recreation Plan (Exhibit R)
8	Install and monitor stream gages	44	Courtright Lake water levels
9	Install additional capacity or other changes	45	Recreation signage
10	Coordinate operations with other projects	46	Coordination with P-1988
11	Headwater or other project benefits	47	Fish and Wildlife Plan (Exhibit S)
12	Navigable waters and public use releases	49	Sedimentation and Pollution Plan
13	Reasonable use of reservoir or lands	50	Sewage Effluent Disposal Plan
14	Transmission lines	51	Chemicals on United States Forest Service lands
15	Protective devices for fish and wildlife	52	Solid Waste Management Plan
16	Free use to United States for fish and wildlife	54	Responsible clearing of lands
17	Construct, maintain, and operate recreational facilities	55	Guidelines for transmission facilities
18	Public access to project waters	56	Plan to minimize disturbance to resources
19	Prevent soil erosion	57	Regular consultation with the agencies
21	Dredging and filling	58	Protection of endangered and threatened species
22	United States improvement of navigation	61	Ownership of Project and P-1988
23	Operation of navigation facilities	62	Further conditions pursuant to the FPA
24	United States power free of cost to navigation	64	Project rate of return
25	Maintenance of navigation lights and signals	65	Use and occupancy
26	Payment for timber cleared	66	Wildlife Habitat Management Plan
27	Fire control and suppression	101	National Forest special use authorization (land-disturbing activities)
28	Use of water for fire suppression	102	Construction on USFS lands
29	Destruction of United States property	103	Approval of Forest Service prior to changing Project facilities
30	Construction of facilities by United States	104	Biannual consultation with Forest Service
31	Approvals for construction of facilities	107	Habitat improvement funds
32	United States communication lines or facilities		

2.1.3.13 Water Rights

All of PG&E's water rights on the North Fork Kings River are subordinate to the downstream water rights of the Kings River water users (specifically, water rights granted under Application 360 covering Pine Flat Reservoir). Under a 1954 agreement with the Kings River Water Association and a 1955 agreement with the Kings River Conservation District, PG&E obtained the right to use, under certain specific conditions, the waters of the North Fork Kings River and its tributaries for power purposes related to PG&E's hydropower projects on the North Fork Kings River.

Table 2.1-2 shows that PG&E owns, by virtue of applications filed with and permits and licenses granted and issued thereunder by the State of California, the following listed rights to divert, by direct diversion or diversion to storage, the natural flow of the North Fork Kings River and its tributaries for power purposes at the Helms Project Powerhouse.

Table 2.1-2. Water Rights Held by PG&E for Power Purposes at the Helms Pumped Storage Project

Application No.	Permit No.	License No.	Priority Date	Storage (ac-ft per annum)[1]	Direct Diversion (cubic feet per second)
12726	010321	10747	October 1, 1948	41,000	–
18227	12344	10748	July 22, 1958	6,335	–
24512	16789	–	December 20, 1954	57,000	9,000
			Total	**104,335**	**9,000**

Note:
[1] Storage to be collected from November 1 of each year to July 31 of the succeeding year.

Outside of the license and water rights described above, no licenses, permits, or agreements constrain PG&E's operation of the Project to generate power. PG&E voluntarily places an operating restriction to three generator starts and two pump starts per day and requires that each unit must run for a minimum of 1 hour per start and must have a minimum of 1 hour downtime per stop.

2.1.3.14 Existing Project Environmental Measures

Helms Project environmental measures are the existing FERC articles, which are listed above. Proposed PG&E measures are included in PG&E's FLA (PG&E 2024) and are therefore discussed under the Proposed Project under Section 2.2.1, Proposed Modifications to Existing Operations, below.

2.2 Proposed Project

This MND evaluates the potential environmental impacts of relicensing for a 30- to 50-year term of continued operation of the Helms Project under a new license. The Proposed Project includes PG&E's recommendations for continued operation and maintenance of the Helms Project; implementation of PG&E's proposed protection, mitigation, and enhancement measures; and as described in PG&E's FLA and supplemental filings (PG&E 2024).

Under the Proposed Project, PG&E would maintain the operation and maintenance activities of the existing license (Appendix B), with a few exceptions described below. As part of a separate FERC and State Water Board discretionary permit review process, PG&E proposes to replace the three turbines in the Helms Powerhouse. No new facilities or substantial modification of existing facilities are proposed at this time. PG&E's proposed changes or modifications to the existing Helms Project, as part of the Proposed Project, are described in detail in the following subsections.

2.2.1 PROPOSED MODIFICATIONS TO THE EXISTING FERC PROJECT BOUNDARY

The Proposed Project includes decreasing the area within the existing FERC Project Boundary by 528.06 acres (ac) from 4837.30 ac to 4309.24 ac of the existing federal lands, of which 344.86 ac are Patented.[3] Almost 80 percent of the federal lands within the existing FERC Project Boundary overlap with federal lands within the Haas-Kings River Hydroelectric Project (FERC Project No. 1988) FERC Project Boundary. The existing FERC Boundary does not include any open water conveyance works, active borrow or spoil areas, dams, or reservoirs.

Proposed changes to the existing FERC Project Boundary of the Helms Project include the following:

- Include all lands necessary for the operation and maintenance of the Proposed Project
- Remove lands no longer necessary for the operation and maintenance of the Proposed Project
- Correct known errors

Table 2.2-1 summarizes land ownership within PG&E's proposed FERC Project Boundary and the difference between PG&E's proposed FERC Project Boundary and the existing FERC Project Boundary. Note, there is overlap between the Helms Project and PG&E's Haas-Kings River Hydroelectric Project, FERC Project No. 1988.

[3] Patented, reconveyed lands are federal lands managed by the Forest Service.

Table 2.2-1. Area Within the FERC Project Boundary in the Helms Pumped Storage Project Existing License and Area Within the Boundary as Proposed by PG&E for Inclusion in a New License

Area Within FERC Project Boundary	Area by Landowner (ac)						Total	
	Federal				Other			
	Sierra National Forest (SNF)	Bureau of Reclamation (BOR)	Bureau of Land Management (BLM)	Patented Reconveyed to USFS[4]	PG&E	Other	Area (acres)	Percent of Total
FERC Boundary in Existing License								
Helms and P-1988 Overlap	2,315.35	0	0	344.69	725.12	0	3,385.16	70%
Overlap Subtotal	2,660.04				725.12			
Helms Only	685.45	28.36	0.07	1.11	154.04	583.08	1,452.14	30%
Helms Only Subtotal	714.99				737.15			
Combined Landowner Subtotal	3,000.80	28.36	0.07	345.80	879.19	583.08	4,837.30	100%
Total	**3,375.03**				**1,462.27**			
Proposed FERC Project Boundary Minus Existing FERC Project Boundary								
Helms and P-1988 Overlap	-455.17	0	0	-23.83	-57.32	0	-536.32	-11.1%
Overlap Subtotal	-479.00				-57.32			
Helms Only	10.22	0.14	2.15	9.88	-14.15	0.00	8.24	0.2%
Helms Only Subtotal	22.39				-14.15			
Combined Landowner Subtotal	-444.95	0.14	2.15	-13.95	-71.47	0.00	-528.08	-10.9%
Total	**-456.61**				**-71.47**			

[4] Forest Service- both Sierra and Sequoia National Forests.

2.2.2 PROPOSED MODIFICATION TO FACILITIES

2.2.2.1 Recreational Facilities

The Proposed Project includes improvements and reconstruction of existing recreational areas and facilities within the FERC Project Boundary, as described in PG&E's Proposed Measure No. 1, Recreation Management Plan (See Section 2.2.4.3). Improvements and reconstruction would occur in various campgrounds, fishing areas, boat launches, and picnic areas around Courtright Lake and Lake Wishon. Table 2.2-2 lists the recreation sites proposed to be improved and the approximate timing of the improvements.

Table 2.2-2. Improvements/Reconstruction of Recreations Sites Under the New License

Recreation Site	Land Ownership	Description of Improvement and/or Reconstruction	Completion in License Year[1]
Courtright Lake Reservoir			
Trapper Springs Campground	NFS	Reconstruction, including replacing food lockers with 30 cubic foot models and applicable accessibility improvements	7-10
Marmot Rock Campground	NFS	Reconstruction, including replacing food lockers with 30 cubic foot models and applicable accessibility improvements	3-6
Wee-Mee-Kute Fishing Access	NFS	Develop trail from parking area to shoreline area	7-10
		Reconstruction, including applicable accessibility improvements	7-10
Courtright Boat Launch	NFS	Reconstruction of the parking area and roads, including accessibility improvements	3-6
		Reconstruction of the boat ramp and dock, including applicable accessibility improvements	10-15
Lake Wishon Reservoir			
Lily Pad Campground	NFS	Reconstruction, including replacing food lockers with 30 cubic foot models and applicable accessibility improvements	7-10
Upper Kings River Group Campground	NFS	Reconstruction, including replacing food lockers with 30 cubic foot models and applicable accessibility improvements	7-10
Short Hair Creek Fishing Access	NFS	Reconstruction, including applicable accessibility improvements	8-12
Wishon Dam Fishing Access	NFS	Reconstruction, including applicable accessibility improvements	8-12
Spillway Fishing Access	NFS	Formalize parking at the dam to better utilize the parking area while maintaining fishing access at the dam. Add parking signage and information board.	8-12
		Reconstruction, including applicable accessibility improvements	8-12

Recreation Site	Land Ownership	Description of Improvement and/or Reconstruction	Completion in License Year[1]
Coolidge Meadow Fishing Access	NFS	Reconstruction, including applicable accessibility improvements	8-12
Upper Kings River Fishing Access	NFS	Reconstruction, including applicable accessibility improvements	10-15
Helms Picnic Area	PG&E	Move up to five picnic sites to the flatter, more accessible area adjacent to the southeast corner of the parking area	5-8
		Reconstruction, including applicable accessibility improvements	5-8
Wishon Boat Launch	PG&E	Reconstruction of the parking area and picnic sites, including applicable accessibility improvements	7-10
		Reconstruction of the boat ramp and dock, including applicable accessibility improvements	10-15

Notes:
[1] Year 1 of the new license refers to the first full calendar year after FERC issues a new license. Heavy and routine maintenance of Helms Project recreation sites will continue through the end of the license term.

2.2.2.2 Roads and Trails

PG&E proposes to include 36.45 miles of vehicular roads and 1.08 mile of trails within the FERC Project Boundary in the new license. These roads are used almost exclusively to access the Proposed Project and would be operated and maintained exclusively by PG&E for Proposed Project purposes. Some roads within the FERC Project Boundary in the existing license are not Helms Project roads (e.g., joint use roads that are owned, operated, and maintained by a third party).

2.2.2.3 Proposed Project Operations & Maintenance

Routine Proposed Project O&M activities are those that occur regularly at Proposed Project facilities and features, are of short duration and create limited disturbance. Routine Proposed Project O&M activities could also occur occasionally, but without a regular schedule, and involve greater levels of disturbance, such as activities that occur over several days, and include ground disturbance, or require use of heavy equipment. All maintenance activities described in Section 2.1.3 above will continue for the Proposed Project.

2.2.3 PROPOSED ENVIRONMENTAL MEASURES AND MANAGEMENT PLANS

As part of the Proposed Project, PG&E has developed or intends to develop resource management plans to be implemented once the license is issued. The intent of these plans and measures is to protect or enhance the existing environment or to mitigate the Proposed Project-related effects to existing resources. Table 2.2-3 lists those plans and measures, the resources they are associated with, and if they are Proposed, Modified, or Existing. Plans listed as Proposed have been developed as part of the current relicensing effort and have been filed with FERC as part of the FLA; those identified as Modified were originally developed as part of the current license and have been updated or revised to be implemented as part of the new license; those identified as Existing are currently in place under the

Helms Project and would continue to be implemented under the Proposed Project. Summaries of each management plan are provided in the text that follows the table. For the purposes of this CEQA analysis, these plans and measures are considered to be part of the Proposed Project.

Table 2.2-3. Management Plans and Measures Developed for the Proposed Project

CEQA Environmental Resource Area	Plan or Measure Name	Plan or Measure Status
Recreation, Biological Resources, Hydrology and Water Quality	PG&E Modified Measure No.1, Recreation Management Plan	Modified
Biological Resources, Hydrology and Water Quality	PG&E Modified Measure No. 3, Biological Resources Management Plan	Modified
Hazards and Hazardous Materials	PG&E Proposed Measure No. 4, Hazardous Substance Plan	Proposed
Visual Resources	PG&E Modified Measure No. 6, Visual Resources Management	Modified
Wildfire	PG&E Proposed Measure No. 7, Fire Management and Response Plan	Proposed
Transportation Networks & Circulation	PG&E Proposed Measure No. 8, Transportation System Management	Proposed
Cultural Resources, Tribal and Cultural Resources	PG&E Modified Measure No. 9, Historic Properties Management Plan	Modified
Biological Resources, Hydrology and Water Quality	PG&E Proposed Measure No. 10, Supplemental Fish Stocking	Proposed

2.2.3.1 Pesticide and Herbicide Application

PG&E has not proposed a standalone pesticide and herbicide plan, but pesticide administration will be supervised by a licensed Pest Control Advisor (PCA) according to a Pest Control Recommendation (PCR) as mandated by the California Department of Pesticide Regulation (CDPR). Applications will follow a Pesticide Use Proposal (PUP) and related environmental analysis for all applications on NFS lands in the SNF. Pesticides will be applied per label instructions, with spill containment and cleanup materials available at job sites. Only the United States Environmental Protection Agency (USEPA), CDPR, and federal land manager-approved pesticides will be used, with formulations for aquatic habitats applied only to those environments. Second-generation anticoagulant rodenticides will not be used. Rodenticide-treated areas will be access-restricted for 24 hours, with burrows covered and carcasses disposed of properly. Vegetation management activities will comply with the Historic Properties Management Plan, coordinated with the PG&E Cultural Resource Specialist. Herbicide applications will occur during daylight, dry conditions, with wind speeds below 5 mph, avoiding large-scale broad applications. Treated areas will be marked with signs detailing pesticide information.

Table 2.2-4. Vegetation Management Treatment Areas

Project Facilities	Vegetation Management Area			
	Routine Vegetation Management		Hazard Tree Removal	
	Area Description[1]	Activities	Area Description[2]	Activities
Hydro Operation Area				
Outside the perimeter fences of the switchyard (includes fuel reduction and defensible space)	100 feet	Manual, mechanical, herbicide	300 feet	Manual, mechanical
Around ancillary support facilities (e.g., gatehouses, housing facilities) (includes fuel reduction and defensible space)				
On either side of Project trails	10 feet			
On either side of tunnel adits, surge chambers, above-ground pipes and penstocks, and gaging stations	25 feet			
Around helicopter landing zone facilities	87 feet[3]			
In and around recreational facilities and dam structures	50 feet			
Edge of Hydro Operation Area road prisms[4]	25 feet			
Transmission, Distribution, and Communication Overhead Lines				
Transmission lines	30 feet[5] beyond edge of outside most conductor (right-of-way maintenance of wire zone)	Manual, mechanical, herbicide	300 feet	Manual, mechanical
Distribution lines (includes fuel reduction and defensible space)				
On either side of communication lines	30 feet			
Edge of transmission/distribution line road prisms[4]	15 feet			

Notes:

[1] All values measured as horizontal distance to be treated and limited to the FERC Project Boundary. Invasive weed treatment will occur in safely accessible areas within this radius.

[2] May extend 300 feet outside the FERC Project Boundary (measured horizontally), if needed, for the safe removal of the hazard tree.

[3] 87 feet in diameter.

[4] The road prism is the area previously disturbed during road construction and is typically 24 feet.

[5] Minimum clearance requirement, depending on voltages of the powerline.

2.2.3.2 Pest Management

PG&E uses a combination of methods for vertebrate pest control. The interior and exterior of the Proposed Project facilities are inspected to identify areas with significant populations of pests that have the potential to impact the integrity of structures or human health and safety. Treatments are applied in these areas on an as-needed basis and are discontinued when populations have been successfully controlled. Bait stations, traps, and physical exclusion (e.g., sealing holes) may be used year-round to protect the interior of the Proposed Project facilities. Exterior pest control is performed when rodents are active (e.g., when new soil deposits indicate recent burrowing) and can occur at various times of year, depending on climate, target species, and food availability. Exterior pest control methods include ground squirrel bait stations, direct burrow baiting, physical exclusion (e.g., use of sand slurry to fill burrows), habitat modification (e.g., reduction in food sources through vegetation management), other non-rodenticide traps (e.g., snap traps), and compressed carbon monoxide gas. Pest management is addressed in greater detail in PG&E's Biological Resources Management Plan (PG&E 2024, Attachment E2).

2.2.3.3 Recreation Management Plan

PG&E's proposed *Recreation Management Plan*, developed in consultation with the Forest Service and National Park Service, aims to manage, enhance, operate, and maintain Helms Project recreation sites. The plan ensures a balance between Helms Project needs and recreational use while maintaining compliance with federal, state, and local regulations. The plan includes a list of improvements, requirements for planning, design and construction, operations, maintenance activities, and a monitoring program. PG&E will reconstruct several facilities, including Trapper Springs Campground, Courtright Boat Launch, and Lily Pad Campground, to meet accessibility standards.

PG&E oversees O&M activities at all Helms Project recreation sites within the FERC Project Boundary, employing concessionaires for routine maintenance from late-May to October, with increased activity during peak holiday seasons. Law enforcement at Lake Wishon and Courtright Lake is managed by the Forest Service and Fresno County Sheriff. PG&E will provide an annual operating plan to the Forest Service by April 15th each year, detailing maintenance and operational strategies.

Recreation sites may be closed for planned or unplanned events, such as construction or repairs, and routine maintenance includes minor repairs, painting, preventive measures, and heavy maintenance of various surfaces. Planned events might include site facility repair or replacement, site reconstruction, and road closures. PG&E's trained staff reports law violations to appropriate authorities.

2.2.3.4 Visual Resources Management

To ensure that the Proposed Project facilities continue to be consistent with Forest Service guidelines, PG&E Modified Measure No. 6, *Visual Resources Management*, would protect aesthetic resources by ensuring PG&E notifies the Forest Service prior to modifications to or the addition of the Proposed Project facilities on NFS lands that may cause changes to the visual environment. The notification would identify potential effects to the visual environment and, if needed per consultation with the Forest Service, PG&E would develop and implement a visual resources protection plan to protect visual resources as part of the Proposed Project work.

2.2.3.5 Biological Resources Management

PG&E's *Biological Resources Management Plan* aims to avoid or minimize impacts on sensitive biological resources within the FERC Project Boundary. This plan includes measures to protect special-status plant species, wetlands, amphibians, aquatic reptiles, birds, and mammals during routine operations and maintenance activities. It outlines limited operating periods, biological monitoring, and restricted work areas to safeguard these species. Erosion control measures and best management practices are included to prevent soil disturbance, spoil wash, erosion, and sedimentation, while ensuring safe pesticide application around aquatic resources.

To protect amphibians and aquatic reptiles, work activities are limited to specific areas, safe routes are established, and speed limits are enforced on unpaved roads. Wildlife is allowed to move out of work zones voluntarily, and specific procedures are followed when certain species are encountered. Equipment and chemicals are managed carefully to prevent pollution, and soil disturbance is minimized. Escape routes are provided, and vegetation management materials are disposed of properly to prevent entrapment.

The plan also addresses potential indirect adverse effects on Endangered Species Act (ESA)-listed species due to habitat alteration during O&M activities. Measures include maintaining habitat integrity, avoiding dispersal barriers, and preventing entrapment. PG&E Proposed Measure No. 8, *Transportation System Management Plan*, complements this by further minimizing effects from grading, vegetation management, and hazard tree removal.

2.2.3.6 Fire Management and Response Plan

PG&E Modified Measure No. 7, *Fire Management and Response Plan*, aims to reduce fire risk within the FERC Project Boundary by implementing various protective measures. This includes developing a Wildlife Risk Analysis Report, adhering to federal, state, and local laws, regulations, codes, and agreements, and following PG&E Utility Standards related to fire risk management. When working on National Forest System (NFS) lands, PG&E will comply with Forest Service-specific fire prevention requirements, acquire necessary approvals for Proposed Project-related burning, and follow fire prevention actions for fire management tools and equipment. PG&E's personnel will perform vegetation management treatments at Proposed Project facilities to prevent wildfires.

During Proposed Project-related activities, PG&E's O&M personnel and contractors will follow all applicable fire prevention and protection laws, regulations, codes, and agreements. PG&E proposes to follow utility standards and specific fire prevention measures during the fire precautionary period. On federal lands, PG&E proposes to use the United States Geological Survey (USGS) Utility Fire Potential Index forecast daily, and on non-federal lands, adhere to the California Department of Forestry and Fire Protection's (CALFIRE) fire ratings and obtain Hot Work Permits for welding and cutting operations. Fire safety measures will be implemented at recreational facilities, and personnel will report and extinguish fires promptly. The *Fire Management and Response Plan* will be reviewed and updated in consultation with relevant agencies when significant changes occur.

2.2.3.7 Transportation System Management

PG&E proposes to file a *Transportation System Management Plan* with FERC within 12 months of license issuance. Developed in consultation with several federal and state agencies, the *Transportation System*

Management Plan will cover non-recreation vehicular roads within the FERC Project Boundary used exclusively for Proposed Project activities. The plan includes a detailed inventory of Proposed Project roads and trails, their current conditions, inspection procedures, maintenance and repair routines, and periodic revisions. PG&E will implement the *Transportation System Management Plan* upon FERC's approval. Additionally, PG&E will submit an annual operating plan to the Forest Service for the operation and maintenance activities at all Proposed Project recreation sites. This includes routine and heavy maintenance during the recreation season and more frequent upkeep during peak holidays.

2.2.3.8 Historic Properties Management

FERC requires PG&E to develop a *Historic Properties Management Plan* (HPMP) that identifies historic properties, anticipated effects on known historic properties, and proposed measures to protect known and inadvertently discovered historic properties. The purpose of the HPMP is to prescribe specific actions and processes for PG&E to manage historic properties within the FERC Project Boundary once the new license has been issued by FERC. The HPMP provides specific management measures for archaeological sites, built environment resources, and Tribal resources identified within the FERC Project Boundary. On December 20, 2024, PG&E submitted a final HPMP to the California State Historic Preservation Officer (SHPO). PG&E filed the final HPMP via electronic submittal (E-File) with FERC on January 28, 2025 (PG&E 2025).

2.2.3.9 Supplemental Fish Stocking

To augment the recreational trout fishery in Courtright Lake and Lake Wishon, PG&E will supplement CDFW’s annual stocking by reimbursing CDFW for an equivalent amount of 9,000 pounds of catchable trout in fish food. This would enhance the fishing opportunities at both reservoirs through the term of the new license.

2.2.3.10 Hazardous Substance Plan

PG&E proposes to file a Hazardous Substance Plan with FERC for approval within 12 months of license issuance. This plan will be developed in consultation with the USFS and SWRCB, and will include documentation of the consultation process and provide justification for any recommendations not adopted by PG&E. The plan will also address substances that, due to their quantity, concentration, or physical or chemical characteristics, pose a significant current or potential hazard to human health, safety, or the environment if released. It will cover the storage, transportation, spill prevention, cleanup, and disposal of hazardous substances used in connection with PG&E’s project activities, and will include: a list of hazardous substances and quantities typically stored at each project facility along with associated containment measures; a list of substances and quantities typically transported between facilities and the safety measures in place; a description of spill cleanup equipment maintained at facilities, in transport vehicles, and on-site during field use; procedures for reporting spills to the USFS, including details such as magnitude, nature, time, date, location, and PG&E’s response actions; procedures for cleanup and disposal of hazardous substances; and procedures for periodic revision of the plan as necessary. PG&E will implement the Hazardous Substance Plan once it is approved by FERC (PG&E, 2024).

3.0 Impact Analysis

This section provides an overview of the existing physical environment and regulatory requirements for each of the resources that may be affected by the Proposed Project. For each resource, there is a discussion of the environmental setting, followed by an evaluation of the potential environmental impacts on the resource. The environmental factors listed below are analyzed herein.

	Aesthetics		Greenhouse Gases		Public Services
	Agriculture and Forestry Resources		Hazards and Hazardous Materials		Recreation
	Air Quality		Hydrology and Water Quality		Transportation
	Biological Resources		Land Use and Planning		Tribal Cultural Resources
	Cultural Resources		Mineral Resources		Utilities and Service Systems
	Energy		Noise		Wildfires
	Geology and Soils		Population and Housing		Mandatory Findings of Significance

3.1 Evaluation and Environmental Impacts

This section presents the impact designations used in the environmental checklist form found in Appendix G of the CEQA Guidelines (State of California 2024). The checklist form is used to describe the potential environmental impacts of the Proposed Project.

For the checklist, the following impact designations are used:

- **Potentially Significant Impact**: An impact that could be significant and for which mitigation has not been identified. If any potentially significant impacts are identified, an Environmental Impact Report (EIR) must be prepared. An Initial Study/Mitigated Negative Declaration (IS/MND) cannot be used if there are potentially significant impacts that cannot be mitigated.
- **Less Than Significant with Mitigation Incorporated**: This designation applies when applicable and feasible mitigation measures, including applicant proposed measures, can reduce an effect from “Potentially Significant Impact” to a “Less Than Significant Impact”.
- **Less Than Significant Impact**: Any impact that would not be considered significant under CEQA, relative to existing standards.
- **No Impact**: The Proposed Project would not have any impact.

3.2 Aesthetics

Except as provided in Public Resources Code Section 21099:

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

3.2.1 ENVIRONMENTAL SETTING

Overall, the land in the Proposed Project vicinity is sloping with a southerly aspect. The area is a rugged, high mountain landscape characterized by granite outcroppings, shallow soils, and conifer forest. The landscape is diverse, ranging from steeply rolling chaparral and grass-woodland foothills to barren windswept crags at the crest of the Sierra Nevada. The mid-elevations are characterized by steep river canyons and gentler densely forested areas. At the high elevations, the topography is shaped by glaciers with sharp ridges, peaks and steep-walled basins and alpine lakes.

Vegetation consists primarily of lodgepole pine, white fir, and red fir with an understory of mountain whitethorn and manzanita. Man-made features include hydroelectric power production facilities, support and housing facilities, recreation areas, transmission lines, and roadways (PG&E 2021).

Public views within the Proposed Project area would be limited to views from recreational areas (e.g., campgrounds, trails), sporadic residences, and along public access roadways. Scenic corridors and vistas are lands comprised of scenic and natural features visible from designated highway rights-of-way. Boundaries of a scenic corridor or vista are determined by the visible landscape as defined by topography, vegetation, viewing distance, and/or jurisdictional lines. State Route 168 crosses the Proposed Project area near Pittman Hill Road and is designated as an Eligible State Scenic Highway[5] by

[5] An eligible State highway becomes officially designated through a process in which the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives

Caltrans (Caltrans 2025). In addition, Fresno County designated one scenic highway in the Proposed Project vicinity – Dinkey Creek Road/McKinley Grove Road from State Highway 168 to Courtright Lake (Fresno County 2024). This roadway is located near the eastern portion of the Proposed Project area, just outside of the wildlife management area. There are no other designated scenic roadways or vistas in the Proposed Project area.

3.2.2 IMPACT ANALYSIS

a) Would the project have a substantial adverse effect on a scenic vista? (Less Than Significant Impact)

Aside from minor modifications to existing recreational facilities, the Proposed Project does not involve any new construction of structures that would impact scenic vistas in the area. Existing operations and maintenance activities would continue within the Proposed Project area, as under current conditions. Improvements to the recreational areas may have a temporary visual impact to recreational users within the Proposed Project area as vehicles and equipment mobilize and demobilize to areas, however, construction equipment and materials are expected to be minimal. Specifically for recreational areas, where viewer sensitivity is higher and fixed, PG&E plans to undertake construction activities during periods outside of the sites' peak recreation season, when possible, to limit impacts to recreational users. Further, recreational area improvements will be phased over several years and across recreational sites, thus limiting visual impacts to recreational users for prolonged periods of time. Residences are limited to the areas near the Helms-Gregg 230 kV Transmission Lines. Work in these areas would include maintenance activities, as needed, which would be consistent with existing conditions. Therefore, the Proposed Project would result in a less-than-significant impact related to adverse effects on a scenic vista.

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

While there is one Eligible State Scenic Highway within the Proposed Project area, no substantial construction activities would occur near this highway that would be visible to the general public. Workers accessing the Helms Project area currently use various roadways to access the area and would continue to do so under the new license. Therefore, there would be no impact related to substantially degrading scenic resources within a state scenic highway.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? (Less Than Significant Impact)

Public views within the Proposed Project area would be limited to views from recreational areas (e.g., campgrounds, trails), sporadic views from residences, and along public access roadways. Viewer sensitivity would be higher near residences and recreational areas where positions are more stationary when compared to views for motorists that are passing through an area. As discussed under subsection 3.2.2(a) above, construction activities associated with the Proposed

notification that the highway has been officially designated a State Scenic Highway by the Caltrans Director (Caltrans 2025).

Project are limited to recreational area improvements. Specifically for recreational areas, where viewer sensitivity is higher and fixed, PG&E plans to undertake construction activities during periods outside of the sites' peak recreation season, when possible, to limit impacts to recreational users and their associated visual sensitivity. Further, recreational area improvements will be phased over several years and across recreational sites, thus limiting visual impacts to certain timeframes. Residences are limited to the areas near the Helms-Gregg 230 kV Transmission Lines. Work in these areas would include maintenance activities, as needed, which would be consistent with existing conditions. Therefore, the Proposed Project would result in a less-than-significant impact related to degradation of the existing visual character or quality of public views 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)

Proposed Project construction activities are limited to recreational area improvements. Construction activities have the potential to include additional lighting as work is being completed and additional glare from vehicles in the Proposed Project area. It is not anticipated that any nighttime work would be required for the recreational improvements, and daytime lighting and glare impacts would be limited in nature depending on exact location and time of day. Any additional lighting and glare associated with construction activities is anticipated to be consistent with the existing developed nature of the recreational areas and would not result in substantial impacts to recreational users. Operationally, recreational improvements include accessibility improvements, parking area improvements, improved picnic areas, and fishing access. Once constructed, these features would blend with the existing recreational facilities in the area and would not result in substantial new sources of lighting or glare. Therefore, the Proposed Project would result in a less-than-significant impact related to new sources of substantial lighting and glare in the area.

3.3 Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation (DOC) as an optional model to use in assessing impacts on agriculture and Farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
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))?				X
d) Result in loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use, or conversion of forest land to non-forest use?				X

3.3.1 ENVIRONMENTAL SETTING

The area surrounding the Proposed Project is sparsely populated and primarily used for recreation and hydroelectric power generation. The infrastructure within the Proposed Project area is limited and primarily serves the operational needs of the Helms Project, including facilities for power generation and maintenance. The agricultural land in proximity to the Proposed Project is primarily located adjacent to (or directly overlapping with) the Proposed Project transmission line corridor, approximately 40 miles to the southwest of the powerhouse. The transmission line corridor traverses a variety of land types which, as it

approaches the hydroelectric components of the Proposed Project to the east, transition from primarily flat parcels of monoculture to more topographically variable.

The majority of the Proposed Project area is located in Sierra Nevada foothills, featuring a mix of conifers, oak woodlands, and chaparral. However, land within and adjacent to the FERC Project Boundary is not used or zoned for forestry purposes. Vegetation management activities are proposed to reduce wildfire risk, protect Proposed Project facilities, protect sensitive resources, manage target invasive weeds, improve the health, sustainability, habitat value, and improve fire resilience of vegetation within the FERC Project Boundary. Vegetation management work would include pruning and removal of nuisance vegetation that may encroach into PG&E's minimum clearance distances, presents a potential fire hazard, impedes access, or obscures the inspection of facilities.

3.3.2 IMPACT ANALYSIS

a) Would the project convert Prime, Unique or Statewide Importance Farmland to non-agricultural use? (No Impact)

The transmission line corridor of the Proposed Project overlaps with Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in Madera County, as mapped by the Farmland Mapping and Monitoring Program of the California Resources Agency (DOC 2022). Specifically, the agricultural land in proximity to the Proposed Project is primarily located adjacent to (or directly overlapping with) the transmission line corridor approximately 40 miles to the southwest of the reservoirs. However, aside from minor modifications to existing recreational facilities infrastructure at both the Courtright and Wishon reservoirs (PG&E 2024), which are not in agricultural areas, the Proposed Project does not involve any new construction or expansion that could affect important farmlands. Existing O&M activities within the transmission line corridor would continue with the Proposed Project but not affect any important farmlands. Therefore, the Proposed Project would not convert any Prime, Unique or Statewide Importance Farmland to non-agricultural use. No impact would occur.

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

Minor modifications are proposed to the existing recreational facilities at both the Courtright and Wishon reservoirs, which are not in agricultural areas. The Helms Project parcels at these locations are zoned by the County of Fresno as RC (Resource Conservation) (County of Fresno 2022) and do not overlap with lands subject to Williamson Act consideration (DOC 2024). The transmission line components of the Proposed Project between the city of Fresno and Shaver Lake do overlap with lands under Williamson Act contracts, although no ground-disturbing or otherwise land converting activities are proposed at these locations Therefore, the Proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act contract. No impact would 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)

PG&E proposes to modify the existing FERC Project Boundary to include 36.45 miles of vehicular roads and 1.08 miles of trails that are used almost exclusively to access the Proposed Project and are operated and maintained exclusively by PG&E for Helms Project purposes. In addition, PG&E proposes inclusion of existing generation and recreational facilities, as well as an overall correction and reduction in the FERC Project Boundary. The re-delineation of FERC boundaries, for relicensing, would incorporate new forested areas into the Proposed Project footprint, but the overall area within the FERC Project Boundary would decrease by 528.08 acres, from 4,837.30 acres to 4,309.22 acres, a decrease of 10.9 percent compared to the FERC Project Boundary in the existing license.

While the Proposed Project setting is compatible with the definition of forest land as stipulated in Public Resources Code section 12220(g), there are no lands currently zoned for timberland production. Inclusion of existing roads and trails and generation and recreational facilities in the FERC Project Boundary would therefore not cause rezoning of forest land, timberland, or timberland zoned Timberland Production. Vegetation management work would continue and include pruning and removal of nuisance vegetation, but would be minimal to maintain PG&E's minimum clearance distances and reducing fire risk. Therefore, no impact would occur related to rezoning timberland or timberland production.

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

The Proposed Project does not involve any new construction or expansion that would result in the loss of forest land or conversion of forest land to non-forest use. The existing infrastructure will continue to be operated without significant changes to the surrounding forest land. Therefore, there would be no impact.

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 Proposed Project does not involve any changes that would result in the conversion of farmland to non-agricultural use, as there are no facility modifications occurring near farmlands. The re-delineation of FERC boundaries for relicensing would incorporate new forested areas into the Proposed Project footprint, but the overall area within the FERC Project Boundary would decrease by 528.08 acres, from 4,837.30 acres to 4,309.22 acres, a decrease of 10.9 percent compared to the FERC Project Boundary in the existing license; this action would not result in the conversion of forest lands. Therefore, there would be no impact related to changes in the existing environment that could convert farmland or forest land to other uses.

3.4 Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

3.4.1 ENVIRONMENTAL SETTING

The Proposed Project site is located within the San Joaquin Valley Air Basin (SJVAB) and is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD).

The SJVAB has an “inland Mediterranean” climate and is characterized by long, hot, dry summers and short, wet winters, particularly at higher elevation. The mountains surrounding the SJVAB form natural horizontal barriers to the dispersion of air contaminants. Air pollution in the SJVAB can be attributed to both human-related (anthropogenic) and natural (non-anthropogenic) activities that produce emissions. Air pollutants from significant anthropogenic activities in the SJVAB include a variety of industrial-based sources as well as on- and off-road mobile sources. Activities that tend to increase mobile activity include increases in population, increases in general traffic activities (including automobiles, trucks, aircraft, and rail), urban sprawl (which will increase commuter driving distances), and general local land management practices as they pertain to modes of commuter transportation. These sources, coupled with geographical and meteorological conditions unique to the area, stimulate the formation of unhealthy air.

The USEPA and California Air Resources Board (CARB) designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. The SJVAB is designated as nonattainment for federal standards for ozone (O_3) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) as well as state standards for O_3, $PM_{2.5}$, and particulate matter less than 10 microns in diameter PM_{10} (SJVAPCD 2025). Accordingly, the SJVAPCD has prepared air quality plans, including the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards and the 2022 Ozone Plan, to achieve attainment of the applicable O_3 and $PM_{2.5}$ standards.

The SJVAPCD recommends that its quantitative air pollution thresholds, shown in Table 3.4-1, be used to determine the significance of the Proposed Project’s emissions in CEQA analyses. If the Lead Agency

finds that a project has the potential to exceed these air pollution thresholds, a project should be considered to have significant air quality impacts.

Table 3.4-1. SJVAPCD Significance Thresholds

Pollutant	Significance Threshold (tons per year [tpy])	
	Construction Emissions	Operational Emission
Reactive Organic Gases (ROGs)	10	10
Nitrogen Oxide (NO_X)	10	10
Carbon Monoxide (CO)	100	100
Sulfur Oxide (SOX)	27	27
Particulate Matter with a diameter of 10 micrometers or less (PM_{10})	15	15
Particulate Matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$)	15	15

Source: SJVAPCD 2015.

3.4.2 IMPACT ANALYSIS

a) Would the project conflict with or obstruct implementation of the applicable air quality plan? (Less Than Significant Impact)

Air districts are required to prepare air quality plans to identify strategies to bring regional emissions into compliance with state and federal air quality standards. Air districts establish emissions thresholds for individual projects to demonstrate the point at which a project would be considered to increase the air quality violations. A project would conflict with the applicable air quality plan if they exceeded any emissions thresholds for which the region is in nonattainment.

As noted previously, the SJVAB, in which the Proposed Project is located, is designated as nonattainment for federal standards for O_3 and $PM_{2.5}$ as well as state standards for O_3, $PM_{2.5}$, and PM_{10} (SJVAPCD 2025). As a result, the SJVAPCD has prepared air quality plans, including the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards and the 2022 Ozone Plan, to achieve attainment of the applicable O_3 and $PM_{2.5}$ standards. The SJVAPCD's Guidance states that projects that fall below the thresholds of significance for criteria air pollutants would be determined to not conflict with the SJVAPCD's air quality plans. Projects that exceed the thresholds would be considered to conflict with the applicable air quality plans (SJVAPCD 2015).

As described under 3.4.2(b), below, the Proposed Project would not exceed the thresholds established by the SJVAPCD. As a result, the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan; therefore, there would be a less than significant impact.

b) 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? (Less Than Significant Impact)

In developing thresholds of significance for air pollutants, the SJVAPCD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project

exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions.

Construction activities result in emissions of criteria pollutants due to the use of off-road equipment, heavy-duty haul trucks, and employee commutes. In addition, fugitive dust is generated from earth-moving activities. For this analysis, demonstrative emissions modeling was conducted to reflect construction activities that would be associated with the proposed minor improvements and reconstruction of existing recreational areas included as part of PG&E's proposed *Recreation Management Plan*.

Proposed minor improvements and reconstruction would occur in various campgrounds, fishing areas, boat launches and picnic areas around Courtright Lake and Lake Wishon. The construction details are not known at this time. As a result, the emissions modeling conducted for this Proposed Project is based on the assumed disturbance area for the minor improvements identified in the *Recreation Management Plan* and relies on model default values for the construction schedule, equipment types and hours of use, and worker and haul truck trips. This estimate is conservative and represents a good-faith effort to provide a quantitative analysis. It was assumed that all facility improvements would occur at the same time to account for any potential overlap in construction activities. CalEEMod Version 2022.1.1.29 was used to estimate construction emissions from the Proposed Project.

The estimated criteria pollutant emissions associated with Proposed Project construction are presented in Table 3.4-2.

Table 3.4-2. Construction Criteria Pollutant Emissions (Unmitigated)

	Emissions (tpy)					
Construction Year	**Reactive Organic Gases (ROGs)**	**Nitrogen Oxide (NOX)**	**Carbon Monoxide (CO)**	**Sulfur Oxide (SOX)**	**Particulate Matter with a diameter of 10 micrometers or less (PM_{10})**	**Particulate Matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$)**
2029	0.15	1.34	1.85	<0.005	0.22	0.13
2030	0.02	0.16	0.26	<0.005	0.01	<0.005
SJVAPCD Thresholds	**10**	**10**	**100**	**27**	**15**	**15**
Exceed Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

Source: CalEEMod calculations are available upon request.

As shown in the table, the modeled Proposed Project construction emissions would not exceed SJVAPCD thresholds of significance. Implementation of the Proposed Project would include minor improvements and modifications to existing facilities and would not result in a permanent increase in population, housing, employment, or vehicle trips in the region. As a result, the Proposed Project's operational emissions would be similar to existing conditions.

Based on the discussion above, implementation of the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Project region is non-attainment under an applicable federal or state ambient air quality standard, and the impact would be less than significant.

c) Would the project expose sensitive receptors to substantial pollutant concentrations? (Less Than Significant Impact)

Sensitive receptors are defined as populations that are more susceptible to the effects of pollution than the population at large. Sensitive receptors are facilities occupied by children, the elderly, and people with illnesses or others who are especially sensitive to the effects of air pollutants. Land uses identified to be sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The Proposed Project area is located approximately 50 miles northeast of the City of Fresno in a rural, forested area. Sensitive receptors are not located in the immediate vicinity of the planned improvements.

The SJVAPCD has established a screening threshold for localized impacts of criteria air pollutants of 100 pounds per day. Proposed Project operational emissions would fall below the screening threshold for all applicable criteria pollutants, and localized impacts would not occur. The following discussion includes a qualitative evaluation of whether fugitive dust, Vally fever spores, or diesel particulate matter (DPM) emissions from construction equipment may adversely affect receptors that may be present in the Proposed Project area.

Fugitive dust would be generated during Proposed Project construction and, specifically, earth-moving activities. Most of this fugitive dust would remain localized and would be deposited near the Proposed Project site. Additionally, SJVAPCD Regulation VIII, Fugitive PM_{10} Prohibitions, is designed to reduce PM_{10} emissions generated by human activity, including construction activities. Some of the requirements listed under Regulation VIII include implementing speed limits on unpaved access roads and construction sites; prohibiting material movement during high wind events; requiring application of water or other soil stabilizers during active operations. The Proposed Project would be subject to all applicable requirements under Regulation VIII. Finally, as demonstrated in Table 3.4-2, PM_{10} emissions from construction would not exceed the applicable threshold of significance.

Valley fever is an infection caused by inhalation of the spores of a fungus that lives in soil. Activities or conditions that increase the amount of fugitive dust contribute to greater exposure, and they include dust storms, grading, and recreational off-road activities. The San Joaquin Valley is considered an endemic area for Valley fever. Construction activities included as part of the Proposed Project would generate fugitive dust that could contain *C. immitis* spores. However, as noted above, the Proposed Project would minimize the generation of fugitive dust during construction activities by complying with the SJVAPCD's Regulation VIII. Consistent with Regulation VIII, during construction, water trucks would be used during phases with exposed soils to further reduce dust emissions and the associated exposure to *C. immitis* spores. Overall, implementation of the Proposed Project would not expose receptors to Valley fever.

Exposure to DPM from diesel vehicles and off-road construction equipment can result in health risks to receptors. Although the Proposed Project would involve the use of diesel fueled vehicles

and off-road equipment, construction would be intermittent and temporary. According to California Air Resources Board (CARB), DPM emissions have also been shown to be highly dispersive in the atmosphere with the DPM concentration decreasing with distance from the source (CARB 2005). Therefore, given the substantial distance to the nearest receptors and the concentration of DPM reaching receptors would be substantially reduced, construction associated with the Proposed Project would not result in a health risk exposure from DPM.

The Proposed Project site is not located near any known serpentine rock formations (USGS 2011), and receptor exposure to naturally occurring asbestos would not occur.

Based on the discussion above, the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations, and impacts would be less than significant.

d) Would the project create objectionable odors affecting a substantial number of people? (Less Than Significant Impact)

While offensive odors rarely cause any physical harm, they can still be unpleasant, leading to distress among the public and often generating citizen complaints. The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source, the wind speed and direction, and the sensitivity of the receptor.

Construction activities associated with the Proposed Project could result in short-term odorous emissions from diesel exhaust associated with diesel-fueled equipment. However, construction activities would be minimal and intermittent, and emissions would disperse rapidly from the Proposed Project site. In addition, as discussed above, there are no sensitive receptors in close proximity to the Proposed Project.

The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJVAB, which includes wastewater treatment facilities, landfills, petroleum refineries, chemical manufacturing, and others (SJVAPCD 2015). The Proposed Project would not involve the implementation of any such land uses. Furthermore, SJVAPCD regulates objectionable odors through Rule 4102, Nuisance. Thus, although not anticipated, if odor complaints are made after the Proposed Project is developed, the SJVAPCD would ensure that such odors are addressed, and any potential odor effects are minimized or eliminated.

Therefore, the Proposed Project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people, and the impact would be less than significant.

3.5 Biological Resources

Would the project:	Potentially Significant Impact	Less than Significant 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 U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
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?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
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?				X

3.5.1 ENVIRONMENTAL SETTING

3.5.1.1 Special Status Species

In this analysis, special status species are defined as those listed, proposed, or under status review for listing as rare, threatened, or endangered by the federal government and/or the state of California; managed by CDFW as Fully Protected (FP) or Species of Special Concern (SSC), or tracked by CDFW as a Special Animal (SA); designated by the SNF as Species of Conservation Concern (SCC) when they occur on NFS lands; or designated by BLM as Sensitive when they occur on BLM-administered lands.

Plants and Critical Habitat

PG&E developed a list of special status plant and lichen species with the potential to occur within the FERC Project Boundary as part of relicensing Study BR-2. The resulting list of species documented in the Proposed Project vicinity was reviewed and compared against existing habitat information and elevation breaks to determine which species have the potential to be present within the proposed FERC Project Boundary. Table 3.5.-1 includes species evaluated in the Study BR-2 report, along with additional species determined to have potential to occur in the FERC Project Boundary based on a June 2025 California Natural Diversity Database (CNDDB) query (CDFW 2025).

Critical habitat for three ESA-listed plant species (succulent owl's clover [*Castilleja campestris* var. *succulenta*], San Joaquin Valley Orcutt grass [*Orcuttia inaequalis*], and hairy Orcutt grass [*Orcuttia pilosa*]) is located within the proposed FERC Project Boundary at lower elevations along the Helms-Gregg 230 kV Transmission Lines including near the San Joaquin River.

Relicensing Study BR-2 documented 1,035 vascular, 5 lichen, 1 fungus, and 33 bryophyte species during 2022 botanical surveys. Study BR-2 floristic surveys identified no ESA-listed plants or BLM Sensitive plants on BLM-administered land, two California Rare Plant Rank (CRPR) 1B species (Bolander's clover [*Trifolium bolanderi*], which is also an SNF SCC, and spiny-sepaled button-celery [*Eryngium spinosephalum*]), and no special status lichens. Twelve occurrences of the two special status species (spiny-sepaled button-celery and Bolander's clover) were mapped.

Table 3.5-1. Special Status Plant Species with Potential to Occur within the Proposed Helms Pumped Storage Project Boundary

Common Name *Scientific Name*	Status	Lifeform	Elevation Range (feet)	Blooming Period[1]	Suitable Habitat	Potential to Occur in the Proposed FERC Project Boundary
Tulare rockcress *Boechera tularensis*	CRPR 1B.3	Perennial herb	5,990-10,500	June-July	Rocky areas and slopes in subalpine coniferous forest and upper montane coniferous forest	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.
Bolander's bruchia *Bruchia bolanderi*	CRPR 4.2, FSS	Moss	5,580-9,185	N/A	Damp soil in lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.
Tree-anemone *Carpenteria californica*	ST, SCC, BLMS, CRPR 1B.2	Perennial evergreen shrub	1,115–4,395	(April) May–July	Granitic areas (usually) of chaparral and cismontane woodland	The species was not observed during 2022 relicensing studies: however, potential habitat is present.
Succulent owl's-clover *Castilleja campestris* var. *succulenta*	FT, SE, CRPR 1B.2	Annual herb (hemiparasitic)	160–2,460	(March) April–May	Often acidic vernal pools	Documented in 2019 in the CalTrans Madera Pools mitigation site under the Helms-Gregg 230 kV Transmission Lines (CDFW 2023b). The species was not observed during 2022 relicensing studies; however, potential habitat is present. Critical habitat is mapped within and adjacent to the Helms-Gregg 230 kV Transmission Lines (USFWS 2023a).
California jewelflower *Caulanthus californicus*	FE, SE, BLMS, CRPR 1B.1	Annual herb	200–3,280	February–May	Sandy areas of chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland	The species was not observed during 2022 relicensing studies; however, potential habitat is present. Critical habitat has not been proposed or designated for this species (USFWS 2023b).

Common Name ***Scientific Name***	**Status**	**Lifeform**	**Elevation Range (feet)**	**Blooming Period**[1]	**Suitable Habitat**	**Potential to Occur in the Proposed FERC Project Boundary**
Palmate- bracted bird's- beak *Chloropyron palmatum*	FE, SE, CRPR 1B.1	Annual herb (hemiparasitic)	15–510	May–October	Alkaline areas in chenopod scrub, and valley and foothill grassland	The species was not observed during 2022 relicensing studies; however, potential habitat is present. Critical habitat has not been proposed or designated for this species (USFWS 2023b).
Merced clarkia *Clarkia lingulata*	SE, SCC, CRPR 1B.1	Annual herb	1,310–1,495	May–June	Chaparral and cismontane woodland	The species was not observed during 2022 relicensing studies; however, potential habitat is present.
Subalpine fireweed *Epilobium howellii*	4.3	Perennial herb	6,560-10,235	July-August	Meadows and seeps, subalpine coniferous forest	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.
Spiny-sepaled button-celery *Eryngium spinosepalum*	1B.2, BLMS	Annual or perennial herb	245-2,430	April-May	Vernal pools	The species is present within the Proposed FERC Project Boundary. It was observed during 2022 relicensing studies.
Slender-stalked monkeyflower *Erythranthe gracilipes*	1B.2, BLMS, FSS	Annual herb	2,855-4,855	April-June	Chaparral	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.
Yosemite ivesia *Ivesia unguiculata*	4.2	Perennial herb	6,790 - 8,860	June-September	Meadows in lodgepole forest and subalpine forest	The species was not observed during 2022–2023 relicensing studies; however, potential habitat is present.
Boggs Lake hedge-hyssop *Gratiola heterosepala*	SE, BLMS, CRPR 1B.2	Annual herb	30–7,790	April–August	Clay areas in lake margins of marshes and swamps, and vernal pools	The species was not observed during 2022 relicensing studies; however, potential habitat is present.
Madera leptosiphon *Leptosiphon serrulatus*	1B.2, BLMS, FSS	Annual herb	984-4,265	April-May	Woodland and chaparral openings	The species was not observed during 2022 relicensing studies; however, potential habitat is present.

Common Name ***Scientific Name***	**Status**	**Lifeform**	**Elevation Range (feet)**	**Blooming Period[1]**	**Suitable Habitat**	**Potential to Occur in the Proposed FERC Project Boundary**
Orange lupine *Lupinus citrinus va. citrinus*	1B.2, BLMS, FSS	Annual herb	1,245-5,580	April-July	Chaparral, cismontane woodland, lower montane coniferous forest	The species was not observed during 2022 relicensing studies; however, potential habitat is present.
Three-ranked hump moss *Meesia triquetra*	4.2	Moss	4,265-9,690	July	Bogs, fens, meadows, seeps, subalpine coniferous forest and upper montane coniferous forest	The species was not observed during 2022 relicensing studies; however, potential habitat is present.
Shevock's copper moss *Mielichhoferia shevockii*	1B.2, BLMS	Moss	2,460-4,595	N/A	Cismontane woodland	The species was not observed during 2022 relicensing studies; however, potential habitat is present.
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	FT, SE, BLMS, CRPR 1B.1	Annual herb	30–2,475	April–September	Vernal pools	Documented occurrences in 2017 north of Avenue 12 under the Helms-Gregg 230 kV Transmission Lines east to Highway 41 (CDFW 2023b). The species was not observed during 2022 relicensing studies; however, potential habitat is present. Critical habitat is mapped within and adjacent to the Helms-Gregg 230 kV Transmission Lines (USFWS 2023a).
Hairy Orcutt grass *Orcuttia pilosa*	FE, SE, BLMS, CRPR 1B.1	Annual herb	150–655	May–September	Vernal pools	Documented in 2017. However, location information imprecise (CDFW 2023b). The species was not observed during 2022 relicensing studies; however, potential habitat is present. Critical habitat is mapped within and adjacent to the Helms- Gregg 230 kV Transmission Lines (USFWS 2023a).

Common Name ***Scientific Name***	**Status**	**Lifeform**	**Elevation Range (feet)**	**Blooming Period**[1]	**Suitable Habitat**	**Potential to Occur in the Proposed FERC Project Boundary**
Whitebark pine *Pinus albicaulis*	FT, BLMS	Evergreen tree	6,562–12,139	N/A	Upper red-fir forest to timberline, and especially subalpine forest	The species was not observed during 2022 relicensing studies; however, potential habitat is present. Critical habitat has not been proposed or designated for this species (USFWS 2023b).
Yosemite bog orchid *Platanthera yosemitensis*	1B.2, FSS	Perennial herb	6,890-7495	July-August	Meadows and seeps	The species was not observed during 2022 relicensing studies; however, potential habitat is present.
Hartweg's golden sunburst *Pseudobahia bahiifolia*	FE, SE, CRPR 1B.1	Annual herb	45–490	March–April	Clay, often acidic areas of cismontane woodland, and valley and foothill grassland	The species was not observed during 2022 relicensing studies; however, potential habitat is present. Critical habitat has not been proposed or designated for this species (USFWS 2023b).
San Joaquin adobe sunburst *Pseudobahia peirsonii*	FT, SE, BLMS, CRPR 1B.1	Annual herb	295–2,625	February–April	Adobe clay areas in cismontane woodland, and valley and foothill grassland	The species was not observed during 2022 relicensing studies; however, potential habitat is present. Critical habitat is not present in the proposed FERC Project Boundary (USFWS 2023b).
Aromatic canyon gooseberry *Ribes menziesii* var. *ixoderme*	1B.2	Perennial deciduous shrub	2,000-3,805	April	Chaparral and cismontane woodland	The species was not observed during 2022 relicensing studies; however, potential habitat is present.
Keck's checkerbloom *Sidalcea keckii*	FE, BLMS, CRPR 1B.1	Annual herb	245–2,135	April–May (June)	Serpentine and clay areas in cismontane woodland, and valley and foothill grassland	The species was not observed during 2022 relicensing studies; however, potential habitat is present. Critical habitat is not present in the proposed FERC Project Boundary (USFWS 2023b).

Common Name ***Scientific Name***	**Status**	**Lifeform**	**Elevation Range (feet)**	**Blooming Period[1]**	**Suitable Habitat**	**Potential to Occur in the Proposed FERC Project Boundary**
Bolander's clover *Trifolium bolanderi*	1B.2, SCC	Perennial herb	6,690-8,530	June-August	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest	The species is present within the Proposed FERC Project Boundary. It was observed during 2022 relicensing studies
Greene's tuctoria *Tuctoria greenei*	FE, SR, CRPR 1B.1	Annual herb	95–3,510	May–July (September)	Vernal pools	The species was not observed during 2022 relicensing studies; however, potential habitat is present. Critical habitat is not present in the proposed FERC Project Boundary (USFWS 2023b).

Source: CNPS (2023), CDFW (2025), unless otherwise cited.

Notes:
BLM – Bureau of Land Management
CESA – California Endangered Species Act
ESA – Endangered Species Act
FE – listed as endangered under the federal ESA
FERC – Federal Energy Regulatory Commission
FSS – USFS sensitive species
FT – listed as threatened under the federal ESA
SCC – Species of Conservation Concern when they occur on NFS lands
SE – listed as endangered under the CESA
SR – listed as rare under the Native Plant Protection Act
USFS – United States Forest Service
() Parenthetical months indicate uncommon extensions to blooming periods
Status:
BLMS – BLM Sensitive species, protected on BLM-administered land
California Rare Plant Rank (CRPR) 1B – plants rare, threatened, or endangered in California and elsewhere
CRPR 4 - Watch List: Plants of limited distribution
CRPR 0.1 – seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
CRPR 0.2 – moderately threatened in California (20–80% of occurrences threatened / moderate degree and immediacy of threat)
CRPR 0.3-Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Mollusks

No ESA-listed mollusk species or mollusk species listed under the California Endangered Species Act (CESA) or as an SCC in the SNF have been identified that have the potential to occur in Courtright Lake or Lake Wishon.

Branchiopods

Relicensing Study BR-3 identified 3 special status branchiopod species with the potential to occur in the FERC Project Boundary, all of which are federally listed under the ESA. A query of CNDDB in June of 2025 identified one additional special status branchiopod with the potential to occur in the FERC Project Boundary (Midvalley fairy shrimp [*Branchinecta mesovallensis*]). Table 3.5-2 lists these species, their regulatory status, suitable habitats, and occurrence information.

Table 3.5-2. Special Status Branchiopods with Potential to Occur Within the Proposed Helms Pumped Storage Project Boundary

Common Name Scientific Name	Status	Habitat in Proposed FERC Project Boundary	Potential to Occur in Proposed FERC Project Boundary
Conservancy fairy shrimp *Branchinecta conservatio*	FE, SA	Proposed FERC Project Boundary is outside the species' known range (USFWS 2007). Critical habitat is not present in the proposed FERC Project Boundary (present in Merced County approximately 25 miles northwest) (USFWS 2023b).	Not expected to occur; proposed FERC Project Boundary is outside the species' known range (USFWS 2007).
Vernal pool fairy shrimp *Branchinecta lynchi*	FT, SA	Suitable habitat (i.e., vernal pools) was identified near the western end of the Helms-Gregg 230 kV Transmission Lines during relicensing Study BR-3 (PG&E 2024). Critical habitat for the species is present within the proposed FERC Project Boundary (USFWS 2023a).	Potential to occur; occurrences are documented near the western end of the Helms-Gregg 230 kV Transmission Lines near the San Joaquin River and Friant-Kern Canal (CDFW 2023a).
Midvalley fairy shrimp *Branchinecta mesovallensis*	SA	Suitable habitat (i.e., vernal pools) was identified near the western end of the Helms-Gregg 230 kV Transmission Lines during relicensing Study BR-3 (PG&E 2024).	Potential to occur; a documented occurrence from 2002 4 miles south of Friant is approximately 0.3 mile South from the proposed FERC Project Boundary (CDFW 2025).
Vernal pool tadpole shrimp *Lepidurus packardi*	FE, SA	Suitable habitat (e.g., vernal pools, ephemeral stock ponds) was identified near the western end of the Helms-Gregg 230 kV Transmission Lines during relicensing Study BR-3 (PG&E 2024). Critical habitat for the species is not present in the proposed FERC Project Boundary (but is present approximately 3 miles to the north) (USFWS 2023b).	Potential to occur; a documented occurrence from 2009 at Big Table Mountain Preserve near Millerton Lake is approximately 6.5 miles from the proposed FERC Project Boundary (CDFW 2023a).

Sources: USFWS 2023a, CDFW 2023, Forest Service 2023a, Attachment E3, CDFW 2025.

Fish

As part of relicensing Study AR-1, fish sampling, reservoir gillnetting and boat electrofishing were conducted in Courtright Lake and Lake Wishon. No ESA or CESA-listed fish species, other special status fish, ESA-designated critical habitat for fish, or essential fish habitat as defined by the Magnuson-Stevens Fishery Conservation and Management Act exist within Courtright Lake and Lake Wishon (PG&E 2024).

Amphibians and Aquatic Reptiles

Relicensing Study AR-2 identified 10 special status amphibian and aquatic reptile species with the potential to occur in the proposed FERC Project Boundary. Table 3.5-3 lists these species, their regulatory status, suitable habitats, and occurrence information, including a summary of relicensing study results where applicable.

Designated critical habitat for California tiger salamander (*Ambystoma californiense)* is present within the proposed FERC Project Boundary along the western end of the lower Helms-Gregg 230 kV Transmission Lines, and designated critical habitat for Yosemite toad (*Anaxyrus canorus)* is present within the proposed FERC Project Boundary primarily at the eastern end of the upper Helms-Gregg 230 kV Transmission Lines and in areas south of Courtright Lake (USFWS 2023a).

Table 3.5-3 Special Status Amphibians and Aquatic Reptiles with Potential to Occur in the Proposed Helms Hydroelectric FERC Project Boundary

Common Name Scientific Name	Status	Habitat in Proposed FERC Project Boundary	Potential to Occur in Proposed FERC Project Boundary
Amphibians			
California tiger salamander Central California DPS *Ambystoma californiense*	FT, ST	Suitable breeding habitat (e.g., vernal pools, ponds) and associated upland habitat (e.g., grassland, oak savannah) was identified near the western end of the Helms-Gregg 230 kV Transmission Lines during relicensing Study AR-2 (PG&E 2024, Attachment E3, Study Data Summary AR-2). Federally designated critical habitat for the species is present within the proposed FERC Project Boundary (USFWS 2023a).	**Known to occur;** species was observed in breeding habitats during relicensing Study AR-2, in the FERC Project Boundary and within the species upland dispersal distance of the west end of the FERC Project Boundary (PG&E 2024, Attachment E3, Study Data Summary AR-2). Additionally, documented occurrences from the last 30 years are clustered along the west end of the Helms-Gregg 230 kV Transmission Lines (CDFW 2023a).
Limestone salamander *Hydromantes brunus*	SCC, ST	Inhabits mossy limestone crevices and talus in grey pine, oak, buckeye, or chaparral habitats and on occasion in abandoned mine tunnels.	**Not expected to occur;** proposed FERC Project Boundary is outside the species' known range.
Gregarious slender salamander *Batrachoseps gregarius*	SCC	Inhabits oak woodlands, high-elevation coniferous forest, and grasslands from 1,000 to 5,000 feet in elevation. The species breeds and lays eggs during rain events in communal nests in moist places under rocks, bark, logs, or leaf litter.	**Potential to occur;** no documented occurrences within the FERC Project Boundary (CDFW 2023; Attachment E3, Study Data Summary AR-2 in PG&E 2024). The species' range overlaps with the proposed FERC Project Boundary. Not observed during Study AR-2.
Kings River slender salamander *Batrachoseps regius*	SCC	Suitable habitat for the species was identified during relicensing Study AR-2 (Attachment E3, Study Data Summary AR-2 in PG&E 2024). Commonly found under rocks, logs, or leaf litter in shaded areas of mixed chaparral, oak, or pine woodlands.	**Potential to occur;** no documented occurrences within the FERC Project Boundary (CDFW 2023; Attachment E3, Study Data Summary AR-2 in PG&E 2024). The nearest known occurrence is a specimen collected in 1981 near Ross Crossing Road, more than 2.6 miles north of the FERC Project Boundary (CDFW 2023a), and the next closest documented sightings are greater than 5 miles south of the FERC Project Boundary (CDFW 2023a). Not observed during Study AR-2.
Hell Hollow slender salamander *Batrachoseps diabolicus*	SCC	Riparian zones in close proximity to large rivers and streams (mainly in pine-oak woodland and chaparral habitats).	**Not expected to occur;** proposed FERC Project Boundary is outside the species' known range. Not observed during Study AR-2.

Common Name Scientific Name	Status	Habitat in Proposed FERC Project Boundary	Potential to Occur in Proposed FERC Project Boundary
Western spadefoot *Spea hammondii*	FPT, SSC, BLMS	Suitable breeding habitat (e.g., vernal pools, ponds) and associated upland habitat (e.g., grassland, chaparral, or pine- oak woodlands) were identified near the western end of the Helms-Gregg 230 kV Transmission Lines during relicensing Study AR-2 (Attachment E3, Study Data Summary AR-2 in PG&E 2024). Critical habitat has not been proposed or designated for this species (USFWS 2023b).	**Known to occur;** species (and associated habitat) was observed during relicensing Study AR-2, within the west end of the FERC Project Boundary (along the Helms-Gregg 230 kV Transmission Lines) (Attachment E3, Study Data Summary AR-2 in PG&E 2024). Additional occurrences from the last 30 years are documented around the same area (CDFW 2023a).
Yosemite toad *Anaxyrus canorus*	FT, SSC	Suitable breeding habitat (e.g., wet mountain meadows) and associated upland habitat was identified near the proposed FERC Project Boundary (near the eastern end of the Helms-Gregg Transmission Lines, Lake Wishon, and Courtright Lake) during relicensing Study AR-2 (Attachment E3, Study Data Summary AR-2 in PG&E 2024). Critical habitat for the species is present within the proposed FERC Project Boundary along the eastern end of the upper Helms-Gregg 230 kV Transmission Lines and nearby areas (USFWS 2023a).	**Potential to occur;** Three known occupied breeding meadows were mapped within dispersal range of the FERC Project Boundary and upland habitats within the dispersal distance of occupied breeding meadows were identified within the FERC Project Boundary (near the upper Helms-Gregg Transmission Lines and Courtright Lake) during relicensing Study AR-2 (Attachment E3, Study Data Summary AR-2 in PG&E 2024). No Yosemite toads were observed during 2022 or 2023 relicensing studies.
Sierra Nevada yellow-legged frog *Rana sierrae*	FE, ST	Suitable habitat (e.g., ponds and streams in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitats) was identified near the eastern end of the FERC Project Boundary during relicensing Study AR-2 (Attachment E3, Study Data Summary AR-2 in PG&E 2024). Critical habitat for the species is not present in the proposed FERC Project Boundary (but is present approximately 10 miles east) (USFWS 2023b).	**Unlikely to occur;** relicensing Study AR-2 determined that most suitable habitat within the FERC Project Boundary was unoccupied (Attachment E3, Study Data Summary AR-2 in PG&E 2024). An occurrence was documented in 2012 near Snow Corral Creek, approximately 3 miles from the FERC Project Boundary (CDFW 2023a). No Sierra Nevada yellow- legged frogs were observed during 2022 or 2023 relicensing studies.
Foothill yellow-legged frog, South Sierra DPS *Rana boylii*	FE, SE, BLMS	Species is considered extirpated from the region, including within the FERC Project Boundary (Jennings 1996; Lind et al. 2003, as cited in CDFW 2023). Critical habitat has not been proposed or designated for this species (USFWS 2023b).	**Not expected to occur;** while historically documented near the FERC Project Boundary, these populations are considered extirpated (Jennings 1996; Lind et al. 2003, as cited in CDFW 2023).

Common Name Scientific Name	Status	Habitat in Proposed FERC Project Boundary	Potential to Occur in Proposed FERC Project Boundary
Aquatic Reptiles			
Northwestern pond turtle *Actinemys marmorata*	FPT, SSC, BLMS	Suitable aquatic habitat (e.g., permanent, slow moving, fresh water) and associated uplands were observed scattered throughout the proposed FERC Project Boundary during relicensing Study AR-2 (Attachment E3, Study Data Summary AR-2 in PG&E 2024). Critical habitat has not been proposed or designated for this species (USFWS 2023b).	**Known to occur;** species were observed in aquatic habitats (e.g., ponds) near the FERC Project Boundary during relicensing Study AR-2 (Attachment E3, Study Data Summary AR-2 in PG&E 2024). Additional occurrences were documented near the FERC Project Boundary on a reach of Rush Creek north of the Helms-Gregg 230 kV Transmission Lines and in a pond near Tollhouse Road (CDFW 2023a). Turtles were observed in the greater vicinity of the FERC Project Boundary during surveys on the North Fork Kings River downstream of Dinkey Creek in 2002, 2007, 2012, and 2017 (PG&E 2023), approximately 5 miles to the south of the FERC Project Boundary.

Sources: USFWS 2023a, CDFW 2023, Forest Service 2023a, PG&E 2024, CDFW 2025.

Terrestrial Wildlife and Critical Habitat

Query results identified 34 special status terrestrial wildlife species with the potential to occur in the proposed FERC Project Boundary (CDFW 2023b, CDFW 2025, USFWS 2023b, Forest Service 2023a). Critical habitat for Southern Sierra Nevada fisher is found within the proposed FERC Project Boundary (USFWS 2023b). PG&E conducted five studies to identify potentially suitable habitat (Studies BR-3, TR-1, TR-2, TR-3, and TR-4) to survey for the presence of special status terrestrial wildlife. These studies identified suitable breeding habitat or documented occurrences of special status species in the vicinity of Proposed Project facilities.

Table 3.5-4. Special Status Terrestrial Wildlife Species with Potential to Occur within the Proposed Helms Pumped Storage Project Boundary

Common Name *Scientific Name*	Status	Suitable Habitat	Potential to Occur in Proposed FERC Project Boundary
Invertebrates			
Yosemite sideband *Monadenia yosemitensis*	SCC	Proposed FERC Project Boundary is outside the species' range in Mariposa County.	Not expected to occur; proposed FERC Project Boundary is outside the species' range in Mariposa County.
Merced Canyon shoulderband *Helminthoglypta allynsmithi*	SCC	Proposed FERC Project Boundary is outside the species' range in Mariposa County.	Not expected to occur; proposed FERC Project Boundary is outside the species' range in Mariposa County.
Crotch's bumble bee *Bombus crotchii*	SEC	Grasslands and shrublands including coastal sage scrub, annual grasslands, and wildland urban interfaces from coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary.
Morrison bumble bee *Bombus morrisoni*	SA	Open dry scrub, shrubland, grassland, and dry coniferous forests	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary
Watts Valley harvestman *Calicina dimorphica*	SA	Serpentine grassland hillsides	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	Limited suitable habitat (i.e., riparian and oak savanna with host plant blue elderberry [*Sambucus me*xicana]) below 500 feet was identified along the western end of the Helms-Gregg 230 kV Transmission Lines (southernmost extent of the species' range) during relicensing studies BR-1 and BR-2 (Attachment E3, Study Data Summary BR-2). Critical habitat is not present within the proposed FERC Project Boundary or vicinity (present in Sacramento County approximately 150 miles north) (USFWS 2023b).	Unlikely to occur; documented occurrences from 1989 and 2006 near the San Joaquin River, approximately 1 mile and 5 miles from proposed FERC Project Boundary, respectively, are now considered to be a different subspecies, the California elderberry longhorn beetle (*Desmocerus c. californicus*), which is not a special-status species.

Common Name ***Scientific Name***	**Status**	**Suitable Habitat**	**Potential to Occur in Proposed FERC Project Boundary**
Birds			
California condor *Gymnogyps californianus*	FE, SE, SFP	Suitable nesting habitat (e.g., cliffs, rock outcrops, or large trees in steep mountainous or canyon terrain) was identified in and near the FERC Project Boundary during relicensing Study TR-3 (Attachment E3, Study Data Summary TR-3). Critical habitat is not present in the proposed FERC Project Boundary (present in Tulare County approximately 40 miles south) (USFWS 2023b).	Unlikely to occur; telemetry data collected within and near the FERC Project Boundary (from 2003–2016) did not document the species in the area. This data indicated a low level of California condor activity near Pine Flat Lake (approximately 5 miles outside the proposed FERC Project Boundary).
Golden eagle *Aquila chrysaetos*	BGEPA, SFP, BLMS	Open woodlands and oak savannahs, grasslands, chaparral, sagebrush flats; nests on steep cliffs or large, prominent trees near suitable foraging areas. Desktop analysis for relicensing Study TR-3 identified approximately 1,600 ac of potentially suitable nesting habitat within 0.25 mile of Project facilities. Field-verification surveys confirmed suitable nesting habitat in eight CWHR types containing steep cliffs or open, rocky habitat, primarily near Courtright Lake and Lake Wishon (Attachment E3, Study Data Summary TR-3).	Potential to occur; documented occurrences of golden eagle within and near the FERC Project Boundary, including at Courtright Lake and along the Helms-Gregg 230 kV Transmission Lines (eBird 2023). Species not observed incidentally during relicensing studies.
Northern goshawk *Accipiter gentilis*	SSC, SCC, BLMS	Breeds in mid-to late-successional stands of coniferous or mixed coniferous forest with dense overstory and relatively open understory or near an opening. Typically forages in younger forests or edge habitats (e.g., meadows, burns, powerline corridors, trails). Desktop analysis for relicensing Study TR-3 identified approximately 8,000 ac of potential suitable nesting habitat within 0.25 mile of Project facilities. Field- verification surveys confirmed suitable nesting habitat in five CWHR types, primarily near Courtright Lake and along the upper Helms-Gregg 230 kV Transmission Lines (Attachment E3, Study Data Summary TR-3).	Known to occur; documented occurrences within and near the FERC Project Boundary, including at Courtright Lake, Lake Wishon, and along the upper portion of the Helms-Gregg 230 kV Transmission Lines (eBird 2023, CDFW 2023b). Multiple incidental observations around Courtright Lake during relicensing studies (Attachment E3, Incidental Species Observations summary).
American goshawk *Accipiter atricapillus*	SSC, BLMS, FSS	Coniferous and mixed forests with a general preference for wooded areas but may be in relatively open woods or along edges.	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary

Common Name ***Scientific Name***	**Status**	**Suitable Habitat**	**Potential to Occur in Proposed FERC Project Boundary**
Bald eagle *Haliaeetus leucocephalus*	BGEPA, SE, SFP, SCC, BLMS	Nests in advanced-successional forest, often coniferous, with snags or other perches near large bodies of water or rivers with abundant fish for foraging. Desktop analysis for relicensing Study TR-3 identified approximately 3,500 ac of potentially suitable nesting habitat within 0.25 mile of Project facilities. Field-verification surveys confirmed suitable nesting habitat in six CWHR types located near Courtright Lake, Lake Wishon, and the lower Helms-Gregg 230 kV Transmission Lines near the San Joaquin River (Attachment E3, Study Data Summary TR-3).	Known to occur; documented occurrences in the proposed FERC Project Boundary at Courtright Lake and Lake Wishon (eBird 2023, GANDA 2015), and incidentally observed on numerous occasions near these waterbodies during relicensing studies (FLA Attachment E3, Incidental Species Observations summary). No bald eagle nests were incidentally observed during relicensing studies.
Swainson's hawk *Buteo swainsoni*	ST, BLMS	Nests in oaks (*Quercus* spp.), cottonwoods (*Populus* spp.), sycamores (Platanus spp.), or other medium to large trees in riparian areas or near sparsely vegetated flatlands with nearby grasslands, irrigated pastures, or grain fields for foraging. Desktop analysis for relicensing Study TR-3 identified approximately 1,500 ac of potentially suitable nesting habitat within 0.25 mile of Project facilities. Field-verification surveys confirmed suitable nesting habitat in Blue Oak Woodland and Valley Foothill Riparian habitats along the lower Helms- Gregg 230 kV Transmission Lines (Attachment E3, Study Data Summary TR-3).	Known to occur; documented occurrences in and near the proposed FERC Project Boundary along the lower Helms-Gregg 230 kV Transmission Lines (eBird 2023) and incidentally observed in this area near the San Joaquin River during relicensing studies (FLA Attachment E3, Incidental Species Observations summary).
Western burrowing owl *Athene cunicularia hypugaea*	SSC, BLMS	Nests and forages in low-gradient, open habitat (e.g., grassland, grazed pasture, scattered oak woodland) with available burrows. Desktop analysis for relicensing Study TR-3 identified approximately 7,000 ac of potentially suitable nesting habitat within 0.25 mile of Project facilities. Field-verification surveys confirmed suitable nesting habitat in Annual Grassland and Blue Oak Woodland habitats along the lower Helms-Gregg 230 kV Transmission Lines (Attachment E3, Study Data Summary TR-3).	Known to occur; many records within and near the proposed FERC Project Boundary at lower elevations along the Helms-Gregg 230 kV Transmission Lines (eBird 2023) and incidentally observed in this area during relicensing surveys (Attachment E3, Incidental Species Observations summary).
California spotted owl, Sierra Nevada DPS *Strix occidentalis occidentalis*	FPT, SSC, BLMS	Suitable nesting habitat (e.g., older forested habitats with complex stands, dominated by conifers) was identified in and near the FERC Project Boundary during relicensing Study TR-3 (Attachment E3, Study Data Summary TR-3). Critical habitat has not been designated or proposed for the species (USFWS 2023b).	Known to occur; numerous known occurrences documented along the Helms-Gregg 230 kV Transmission Lines (above 1,000 feet in elevation) and near Lake Wishon (Forest Service 2023b, CDFW 2023c). Areas designated as Protected Activity Centers by the Forest Service overlap the proposed FERC Project Boundary.

Common Name ***Scientific Name***	**Status**	**Suitable Habitat**	**Potential to Occur in Proposed FERC Project Boundary**
Great gray owl *Strix nebulosa*	SE, SCC	Dense, montane coniferous and mixed hardwood coniferous forest, usually near a meadow for foraging; typically nests in large, broken-topped snags. Desktop analysis for Study TR-3 identified approximately 1,500 ac of potentially suitable nesting habitat within 0.25 mile of Project facilities. Field-verification surveys confirmed suitable nesting habitat in Lodgepole Pine, Red Fir, and Sierran Mixed Conifer habitats within 1,000 feet of a meadow, primarily along the upper Helms-Gregg 230 kV Transmission Lines (Attachment E3, Study Data Summary TR-3).	Potential to occur; documented occurrences in 2016 west of McKinley Grove Road approximately 0.5 mile north of the FERC Project Boundary (Forest Service 2023b); additional occurrences were documented in 2002 and 2007 near Shaver Lake (CDFW 2023b).
American peregrine falcon *Falco peregrinus anatum*	SCC	Inhabits a variety of open habitats including wetlands, woodlands, and agricultural fields. Also found in urban areas. Typically nests along high cliffs but also known to use human-made structures or predominant snags or trees. Riparian areas and wetlands are often used for foraging. Relicensing Study BR-1 mapped 21 CWHR habitat types1 in or adjacent to the FERC Project Boundary that are potentially suitable for foraging or nesting (Attachment E3, Study Data Summary BR-1).	Known to occur; documented within and near the proposed FERC Project Boundary near Courtright Lake, Lake Wishon, and the upper portion of the Helms-Gregg 230 kV Transmission Lines (Forest Service 2023b). Species incidentally observed east of Trapper Springs Campground on Courtright Lake during relicensing studies (Attachment E3, Incidental Species Observations summary).
Prairie falcon *Falco mexicanus*	WL	Uncommon permanent resident that ranges from southeastern deserts northwest throughout the Central Valley and along the inner Coast Ranges and Sierra Nevada. Distributed from annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Mostly absent from northern coastal fog belt. Not found in upper elevations of Sierra Nevada.	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary

Common Name ***Scientific Name***	**Status**	**Suitable Habitat**	**Potential to Occur in Proposed FERC Project Boundary**
Willow flycatcher[1] *Empidonax traillii brewsteri* *Empidonax traillii adastus*	SE, SCC	Dense thickets near permanent standing water within riparian woodland often dominated by willows (Salix spp.) and/or alder (Alnus spp.). Desktop analysis for relicensing Study TR-2 identified 77 ac of potentially suitable nesting and foraging habitat within 500 feet of Project facilities (Attachment E3, Study Data Summary TR-2). Field-verification surveys identified suitable habitat in Montane Riparian and Wet Meadow habitats, primarily along the western shore of Lake Wishon.	Potential to occur**;** documented in 1986 along the western shore of Lake Wishon (CDFW 2023b, Forest Service 2023b). No willow flycatchers were incidentally observed during 2022 or 2023 relicensing studies.
Loggerhead shrike *Lanius lucovicianus*	SSC	Open shrubland or woodland with short vegetation and/or bare ground for hunting; some tall shrubs, trees, fences, or power lines for perching; typically nest in isolated trees or large shrubs. Relicensing Study BR-1 mapped eight CWHR habitat types2 in or adjacent to the FERC Project Boundary that are potentially suitable for loggerhead shrike foraging or nesting (Attachment E3, Study Data Summary BR-1).	Known to occur; incidentally observed at lower elevations along the Helms-Gregg 230 kV Transmission Lines during relicensing Study BR-3 in 2022 (Attachment E3, Incidental Species Observations summary).
Black-backed woodpecker *Picoides arcticus*	SA	Fir and lodgepole pine forest	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary
Yellow warbler *Setophaga petechia*	SSC	Deciduous riparian woodland close to water (e.g., streams, wet meadows). Relicensing Study BR-1 mapped nine CWHR habitat types in or adjacent to the FERC Project Boundary that are potentially suitable for yellow warbler foraging or nesting (Attachment E3, Study Data Summary BR-1).	Known to occur; incidentally observed at upper elevations along the Helms-Gregg 230 kV Transmission Lines during relicensing Study AR-2 in 2022 (Attachment E3, Incidental Species Observations summary).
Tricolored blackbird *Agelaius tricolor*	ST, SSC, BLMS	No moderately or highly suitable habitat was identified within 500 feet of Project facilities during relicensing Study TR-2.	Unlikely to occur; no moderately or highly suitable habitat identified in the proposed FERC Project Boundary.
Mammals			
Fresno kangaroo rat *Dipodomys nitratoides exilis*	FE, SE	Species is considered extirpated from the proposed FERC Project Boundary (USFWS 2020). Critical habitat for the species is limited to a small area near Mendota, California, outside the proposed FERC Project Boundary (USFWS 2023b).	Not expected to occur; there are currently no known extant populations of the species. The last observation of the species was in 1992 in the Alkali Sink Ecological Reserve (USFWS 2020), west of Fresno.

Common Name ***Scientific Name***	**Status**	**Suitable Habitat**	**Potential to Occur in Proposed FERC Project Boundary**
Pallid bat *Antrozous pallidus*	SSC, BLMS	Crevice-roosting in rocks, live or dead tree hollows, mines, caves, and a variety of vacant and occupied structures or buildings. Maternity colony size 20–200 individuals, including females and young, and male day roosts up to 60 individuals (Oregon Wildlife Institute 2016, Harris 2021b). Relicensing Study TR-4 identified suitable roosting habitat to include buildings, tunnels, rocks with cracks and cavities, and trees with goose pens (Attachment E3, *Study Data Summary TR-4*).	Known to occur; documented acoustically at an area adjacent to the Helms Pumped Storage Project Sewage Treatment Building and along the edge of the Helms-Gregg 230 kV Transmission Lines.
Western red bat *Lasiurus frantzii*	SSC	Foliage-roosting, primarily in trees and less often in shrubs (Harris 2023c). Roosts individually or in small groups. Relicensing Study TR-4 identified suitable roosting habitat at trees with foliage (Attachment E3, *Study Data Summary TR-4*).	Known to occur; documented acoustically at areas near Lake Wishon, Helms Headquarters, Helms Support Facility, and within and along the edge of the Helms-Gregg 230 kV Transmission Lines.
Sierra marten *Martes caurina sierrae*	SCC	Advanced successional or mature forest stands; species will den in cavities of large trees, snags, logs, burrows, or on occasion in caves or rocky crevices. Relicensing Study BR-1 identified 10 CWHR habitat types[4] in or adjacent to the FERC Project Boundary that are potentially suitable for marten foraging or denning (Attachment E3, *Study Data Summary BR-1*).	Known to occur; documented throughout the upper elevation portions of the proposed FERC Project Boundary (including Courtright Lake, Lake Wishon, and upper elevations of the Helms-Gregg 230 kV Transmission Lines; Forest Service 2023b).
Long-eared myotis *Myotis evotis*	BLMS	Crevice-roosting, primarily in buildings, snags, and under bark. Maternity colonies usually contain 12–30 individuals, comprised of females and young (Harris 2023a). Relicensing Study TR-4 identified suitable roosting habitat at buildings and live trees and snags with peeling bark (Attachment E3, Study Data Summary TR-4).	Known to occur; documented acoustically near Courtright Lake, Lake Wishon, Helms Pumped Storage Project Sewage Treatment Building, Helms Support Facility, and within and along the edge of the Helms-Gregg 230 kV Transmission Lines.

Common Name ***Scientific Name***	**Status**	**Suitable Habitat**	**Potential to Occur in Proposed FERC Project Boundary**
Fringed myotis *Myotis thysanodes*	SCC, BLMS	Crevice, cavity, and foliage-roosting. Roosts in a wide variety of habitats including rock crevices, caves, mines, buildings, and bridges, and early to mid-stage large diameter snags. Maternity colonies up to 200 individuals, composed of females and young (Harris 2021a). Relicensing Study TR-4 identified suitable roosting habitat to include trees with foliage, buildings, tunnels, snags, and rocks with cracks and cavities (Attachment E3, Study Data Summary TR-4).	Known to occur; documented acoustically at areas within Helms Headquarters and within and along the edge of the Helms-Gregg 230 kV Transmission Lines.
Yuma myotis *Myotis yumanensis*	BLMS	Crevice-roosting in buildings, mines, caves, and also documented in abandoned swallow nests and under bridges. Maternity colonies may include several thousand individuals, comprised of females and young (Harris 2023b). Relicensing Study TR-4 identified suitable roosting habitat to include buildings and tunnels (Attachment E3, Study Data Summary TR-4).	Known to occur; documented acoustically at areas near Courtright Lake, Lake Wishon, Helms Headquarters, Helms Support Facility, and within and along the edge of the Helms-Gregg 230 kV Transmission Lines.
North American wolverine *Gulo gulo luscus*	FT, ST, SFP	Species is considered extirpated from the proposed FERC Project Boundary. Critical habitat has not been proposed or designated for this species (USFWS 2023b).	Not expected to occur; documented occurrence from 1913 near Lake Wishon and the Helms-Gregg 230 kV Transmission Lines (CDFW 2023b). The species is thought to be extirpated from most of California, including the proposed FERC Project Boundary, with only two individuals confirmed in California within the last 100 years (found in Tahoe National Forest and Inyo National Forest).
Fisher, Southern Sierra Nevada DPS *Pekania pennanti*	FE, ST, SSC, BLMS	Suitable breeding habitat (e.g., dense, complex conifer forests) was identified within the eastern portion of the FERC Project Boundary during relicensing Study TR-1 (Attachment E3, Study Data Summary TR-1). Critical habitat for the species is currently proposed and is found within the proposed FERC Project Boundary (USFWS 2023b).	Known to occur; occurrences documented near the upper elevation portions of the Helms-Gregg 230 kV Transmission Lines and near Lake Wishon (Forest Service 2023b, CDFW 2023b). A potential fisher (confident identification was unable to be made due to distance) was observed along the Helms-Gregg 230 kV Transmission Lines during relicensing studies (Attachment E3, Incidental Species Observations summary).

Common Name *Scientific Name*	Status	Suitable Habitat	Potential to Occur in Proposed FERC Project Boundary
American badger *Taxidea taxus*	SSC	Uncommon, permanent resident found throughout most of the state, except in the northern North Coast area (Grinnell et al. 1937). Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary
San Joaquin kit fox *Vulpes macrotis mutica*	SA	The kit fox's range in the San Joaquin Valley extends from southern Kern County north to Contra Costa, Alameda, and San Joaquin counties on the western side of the valley; and to the La Grange area of Stanislaus County on the eastern side of the valley.	Potential to occur; suitable habitat exists within the proposed FERC Project Boundary
Sierra Nevada red fox – Sierra Nevada DPS *Vulpes vulpes necator* pop. 2	SA, FSS	A total of 13 potentially suitable CWHR habitat types (Annual Grassland, Aspen, Barren, Eucalyptus, Jeffrey Pine, Lodgepole Pine, Mixed Chaparral, Montane Hardwood-Conifer, Montane Riparian, Ponderosa Pine, Red Fir, Sierran Mixed Conifer, and Wet Meadow) were identified in or adjacent to the FERC Project Boundary during relicensing Study BR-1 (Attachment E3, Study Data Summary BR-1). Suitable habitat for the species includes higher elevation conifer forests (species is typically found in areas above 7,000 feet in Sierra Nevada Mountains; Grinnell et al. 1937, as cited in SCAT 2022), sub-alpine woodlands, while requiring dense vegetation and rocky areas for den sites. Critical habitat has not been federally proposed or designated for this species (USFWS 2023b).	Unlikely to occur; occurrences from 1999 are documented in and near the proposed FERC Project Boundary (CDFW 2023b). The proposed FERC Project Boundary is in the historical range and the estimated population range of the species; however, more intensive, and focused studies are actively being conducted to better understand the species current distribution and range (SCAT 2022). Currently known populations are found in Lassen Volcanic National Park, the Sierra Nevada between Highway 88 and the Mono Creek Watershed, and the crest of the Oregon Cascades between Mount Hood and Crater Lake National Park (SCAT 2022).

Source: CDFW (2023), CDFW (2025), USFWS (2023b), Forest Service (2023a)

[1] Two subspecies of willow flycatcher (*Empidonax traillii brewsteri* and *E. traillii adastus*) are both listed as endangered under the CESA and as SNF SCC. *E. traillii brewsteri* is more likely to occur and has the potential to breed within the proposed FERC Project Boundary, while *E. traillii adastus* primarily occurs in the eastern Sierra Nevada mountains. However, the species' life history descriptions and analysis of potential Project effects are applicable to both subspecies.

3.5.1.2 Native or Resident Fish Species

Fish species present within the proposed FERC Project Boundary include stocked triploid (i.e., sterile) brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta)*, and rainbow trout (*Oncorhynchus mykiss*) (PG&E 2024). Of these, only rainbow trout are native to California, however current populations in Courtright Lake and Lake Wishon are likely naturalized from stocked populations to support recreational angling, as the area occupied by Courtright Lake and Lake Wishon and their tributaries was historically fishless (Moyle et al. 1996).

3.5.1.3 Wetlands

During relicensing Studies BR-1 and BR-3, biologists identified wetlands within the FERC Project Boundary and surrounding 0.5 mile via review of available data sources (i.e., aerial imagery, CaliforniaLVEG [Forest Service 2021a], National Wetlands Inventory (NWI) [USFWS 2021], California Natural Diversity Database [CDFW 2023]), and in coordination with field surveys for Study BR-2. Available coarse-scale mapping (i.e., CaliforniaLVEG, NWI) in this area was refined as part of relicensing Study BR-1 to map 28 wetland Manual of California Vegetation communities totaling 655.0 ac. During Study BR-3, biologists subsequently characterized 44 wetlands within the FERC Project Boundary and within 50 feet of the shorelines of Courtright Lake and Lake Wishon during field surveys.

Within and adjacent to the proposed FERC Project Boundary, wetlands at lower elevations (below approximately 3,000 feet) are largely palustrine systems used as water sources for grazing livestock, while those at higher elevations (above approximately 6,000 feet) are predominantly wet meadows. Perennial and intermittent riverine wetlands are scattered throughout the proposed FERC Project Boundary and vicinity. Four of the characterized wetlands (Wetlands 12, 16, 29, and 43) have the topography, hydrologic character, and bryophyte and plant species typical of Sierra Nevada fens. Three of the characterized wetlands (Wetlands 1, 2, and 4) can be classified as vernal pools.

3.5.1.4 Non-Native Invasive Plant Species

During relicensing Study BR-2, biologists documented 134 non-native plant species within the proposed FERC Project Boundary, 25 of which had been documented in available data from prior botanical surveys (PG&E 1986, 2003; Stebbins 1985, 1987, 2012, 2014). Many of these non-native invasive plant species (e.g., slender wild oat [*Avena barbata*], ripgut grass [*Bromus diandrus*]) are established or widespread in portions of the proposed FERC Project Boundary.

Four vegetation alliances mapped as part of Study BR-1 (*Avena* spp.–*Bromus* spp. Herbaceous Semi-Natural Alliance [wild oats and annual brome grassland], *Phragmites australis–Arundo donax* Herbaceous Semi-Natural Alliance [common and giant reed marsh], *Polygonum lapathifolium–Xanthium strumarium* Herbaceous Alliance [smartweed–cocklebur patch], and *Eucalyptus* spp.–*Ailanthus altissima–Robinia pseudoacacia* Woodland Semi-Natural Alliance [eucalyptus–tree of heaven–black locust grove]) are dominated by non-native invasive plants.

During the development of Study BR-2, PG&E consulted with the Forest Service on a list of non- native invasive plant species of known concern (Forest Service 2021b) and determined that a subset of those species (i.e., 21 species) should be deemed “high priority” and mapped in the field on NFS lands. All other species were noted as part of the comprehensive species list which was collated by proximity to major Project facilities and features (e.g., Helms Support Facility).

3.5.1.5 Vegetation Communities

Twenty-seven sensitive natural communities with a state ranking of S2 (imperiled) or S3 (vulnerable) occur within the FERC Project Boundary, covering 1,228.4 ac (25.4%). The remaining 33 vegetation communities have a state ranking of S4 (apparently secure) or S5 (secure) and are at fairly low to no risk of extirpation in California or do not currently have a state ranking.

3.5.2 APPLICANT PROPOSED MEASURES

PG&E's Proposed Project includes the following four measures (See Section 2.2.3 Proposed Environmental Measures and Management Plans) related to fish and other aquatic resources, wildlife, and botanical resources:

- **PG&E Proposed Measure No. 3, Biological Resources Management Plan**, which will implement erosion control measures and best management practices to prevent soil disturbance, spoil wash, and erosion and minimize sedimentation in wetland areas and waterways, as well as safeguard the proper usage and safe application of pesticides around aquatic resources, including the use of pesticide formulations labeled for aquatic application and treatment buffers around aquatic habitats, to avoid and/or minimize potential adverse effects on water quality.
- **PG&E Proposed Measure No. 4, Hazardous Substance Plan**, which will address the storage, transportation, spill prevention, cleanup, and disposal of hazardous substances used by PG&E associated with Proposed Project activities.
- **PG&E Proposed Measure No. 8, Transportation System Management Plan**, which will account for routine procedures for the inspection of Proposed Project roads and trails and short-term and long-term procedures for the maintenance and repair of Proposed Project roads and trails.
- **PG&E Proposed Measure No. 10, Supplemental Fish Stocking**, which will commit PG&E to annually reimburse CDFW for the equivalent amount of 9,000 pounds (lbs) of catchable trout in fish food to supplement CDFW's annual stocking program in Courtright Lake and Lake Wishon.

3.5.3 IMPACT ANALYSIS

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)

3.5.3.1 Special Status Mollusks

Based on the absence of special status mollusk species within the Proposed Project area, no impacts to these species would occur.

3.5.3.2 Special Status Branchiopods

Pollution or Runoff and Pesticide Use

Routine Proposed Project O&M activities include pesticide (i.e., herbicide and rodenticide) use that could cause adverse impacts to special status branchiopods or their habitat if present in the Proposed Project area resulting from pollution or runoff (including sedimentation and pesticide use). Detailed analysis of the magnitude of potential effects of herbicide use is provided in the FLA (PG&E 2024, Attachment E5), which includes the types of herbicides, exposure estimates, and hazard quotients for common exposure scenarios. Hazard quotients indicate the potential for acute toxicological effects on special status branchiopods from the use of some herbicides (clethodim, fluroxypyr, glyphosate, indaziflam, triclopyr [BEE]). However, infrequent applications (i.e., once or twice per year) of herbicide in specific locations with supervision by a licensed PCA during all applications and implementation of avoidance and minimization measures included in PG&E Proposed Measure No. 3, *Biological Resources Management Plan* (e.g., establishment of vernal pool habitat buffers, use of targeted application methods), would reduce the potential adverse effects on special status branchiopods as a result of Proposed Project O&M activities.

Additional adverse effects on ESA-listed listed branchiopods resulting from pollution or runoff of other toxic materials or sediment could occur during Proposed Project O&M activities. These impacts would be either avoided or minor and localized by implementing the measures in PG&E Proposed Measure No. 3 and PG&E Proposed Measure No. 4, *Hazardous Substance Plan*. Management of equipment, vehicles, spoil sites, chemicals, and trash would reduce or prevent the direct or indirect exposure of individuals to potentially toxic materials, including use of pesticides used during vegetation management or rodent control, which are known to persist in upland habitats or potentially enter aquatic habitats through runoff. Implementation of PG&E Proposed Measure No. 8, T*ransportation System Management Plan* would further address erosion along Proposed Project roads and stream crossings to minimize sediment runoff. Therefore, there would be a less than significant impact.

Vehicle and Equipment Use

Vehicle use or use of heavy equipment during routine Proposed Project O&M activities has the potential to impact special status branchiopods through burying or crushing of species. Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan* and PG&E Proposed Measure No. 4, *Transportation System Management Plan* includes measures to reduce or prevent the direct injury or mortality of individuals that could otherwise be crushed or buried by vehicles, equipment, or personnel during (1) routine vegetation management including hazard tree removal; (2) Proposed Project maintenance (roads, trails, facilities, or power and communication lines); (3) transmission line repairs (tower clearing, foundation repairs, or minor grading); (4) debris, sediment, and trash management; or (5) periodic patrols and/or inspections. It is anticipated these impacts would be either avoided or minor and localized with the implementation of the measures included in PG&E Proposed Measure Nos. 3 and 8. This includes avoiding travel through standing water and conducting work near wetlands during the dry season to minimize or avoid the potential for vehicles, equipment, or personnel operating in, proximate to, or moving through, aquatic habitats to crush special status branchiopods. Additionally, PG&E Proposed Measure No. 3 includes routine equipment inspection and maintenance to reduce the spread of invasive species by cleaning vehicles and equipment of sediment and vegetation prior to entering the watershed (i.e., AMM-15). Therefore, there would be a less than significant impact.

3.5.3.3 Special Status Fish

Based on the absence of special status fish species within the Proposed Project area, no impacts to these species would occur. Impacts to resident and migratory native freshwater fish with no special status or other listing designation are present in the proposed FERC Project Boundary and are discussed under Section 3.2.3.9, impact analysis (d).

3.5.3.4 Special Status Amphibians and Aquatic Reptiles

Potential effects of routine Proposed Project O&M activities implemented under PG&E's Proposed Project on ESA-listed and otherwise special status amphibians and aquatic reptiles include direct effects related to vehicle and equipment use, indirect effects related to pollution and runoff (including sedimentation and pesticides), and indirect effects related to habitat alterations.

Vehicle and Equipment Use

Potential adverse impacts on ESA-listed or other special status amphibians or aquatic reptiles could occur from vehicle or equipment use during Proposed Project O&M activities, and include direct injury or mortality of individuals that could be crushed or buried by vehicles, equipment, or personnel associated with: (1) routine vegetation management including hazard tree removal; (2) Project maintenance (e.g., roads, trails, facilities, or power and communication lines); (3) transmission line repairs (e.g., tower clearing, foundation repairs, or minor grading); (4) debris, sediment, and trash management; or (5) periodic patrols and/or inspections.

Special status amphibians that spend most of their lives using upland subterranean habitats such as in rodent burrows, rock crevices, and friable soil (i.e., California tiger salamander, western spadefoot [*Spea hammondii*], or Yosemite toad) or sheltering habitats such as under leaf litter, logs, and root tangles (i.e., Kings River slender salamander [*Batrachoseps regius*] or gregarious slender salamander [*Batrachoseps gregarius*]), are particularly vulnerable to accidental crushing because they are typically hidden from view. Similarly, northwestern pond turtles (*Actinemys marmorata*) use terrestrial uplands for nesting, and underground eggs may be inadvertently disturbed or crushed by ground-disturbing activities. Individuals could also be crushed in upland habitats or on roads during the species' periods of terrestrial movement.

It is anticipated these impacts would be either avoided or minor and localized with the implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan,* PG&E Proposed Measure No. 4, *Hazardous Substance Plan,* and PG&E Proposed Measure No. 8*, Transportation System Management Plan* which include managing equipment and vehicles (e.g., enforcing speed limits, checking under vehicles before use), and following procedures when an animal is encountered), and avoiding travel through standing water and conducting work near wetlands during the dry season would also minimize or avoid the potential for vehicles, equipment, or personnel operating in, proximate to, or moving through, aquatic habitats to crush amphibian eggs, larvae, or breeding adults. Additionally, California tiger salamander, western spadefoot, and Yosemite toad, and other common amphibian species often move over terrestrial habitats during or directly after rain events and at night; as such, implementation of measures included in PG&E Proposed Measure No. 3 would be timed so that Proposed Project O&M activities, where overland travel of vehicles and equipment are used, avoid these periods for amphibian movement. In addition, implementation of PG&E Proposed Measure Nos. 3, 4, and 8 would prevent indirect impacts to special status amphibians and aquatic reptiles resulting from the modification or

degradation of designated critical habitat or otherwise suitable habitats within the proposed FERC Project Boundary from vehicle and equipment use. This is discussed further under Alterations to Habitat, below.

Implementation of PG&E's Proposed Measure Nos. 3, 4, and 8, would avoid or minimize the potential for adverse impacts from vehicle and equipment use on special status amphibians and aquatic reptiles with the potential to occur within the proposed FERC Project Boundary, and their designated critical habitat. Therefore, there would be a less than significant impact.

Vegetation Management

Vegetation management activities, including herbicide application and hazard tree removal, are included in the Proposed Project to reduce wildfire risk, protect Proposed Project facilities, protect sensitive resources, manage targeted invasive weeds, and improve the health, sustainability, habitat value, and fire resilience of vegetation within the proposed FERC Project Boundary. Hazard tree removal and defensible space activities, especially those involving ground disturbance, could create areas of bare, disturbed soil and temporarily lead to increased erosion, discharge of suspended sediments, and turbidity in downstream waterbodies. Such activities could cause adverse impacts to special status amphibians and reptiles known to occur or with potential to be present in the Proposed Project area or their habitat.

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan,* and PG&E Proposed Measure No. 4, *Hazardous Substance Plan* and corresponding general and resource specific measures and BMPs, would avoid and minimize effects from vegetation management activities such as displacement or removal of leaf litter, wood cover, or other herbaceous materials; chipping of materials, hazard tree felling, or other vegetation management that could cover upland refugia such as rodent burrows, rock crevices, or root tangles, or create dispersal barriers between upland and aquatic habitats; herbicide application, and runoff from machinery (discussed in further detail, below). Therefore, there would be a less than significant impact.

Pesticides, Pollution or Runoff

Potential indirect adverse impacts on ESA-listed or otherwise special status amphibians or aquatic reptiles could result from pollution or runoff during Proposed Project O&M activities into occupied or suitable aquatic habitats. Use of equipment, vehicles, spoil sites, and chemicals, and production of trash during Proposed Project O&M activities could result in the direct or indirect exposure of individuals to potentially toxic materials, including use of pesticides (such as rodenticides). Such pesticides are known to persist in upland habitats and could potentially enter aquatic habitats through runoff.

Pesticides can have deleterious effects on amphibians, particularly the tadpole life stage (Cauble and Wagner 2005; Comstock et al. 2011, as cited in USFWS 2018). Amphibians are generally more sensitive to pesticides than other taxa because (1) the life history of most amphibians involves both aquatic larval and terrestrial post-metamorphic life stages, allowing exposure to toxicants in both aquatic and terrestrial habitats; and (2) amphibian skin is highly permeable because it is physiologically involved in gas, water, and electrolyte exchange with their environment, increasing the potential for absorption (Quaranta et al. 2009). Depending on the dosage and formulation (e.g., type of surfactant), direct exposure can cause mortality or morbidity in all life stages of amphibians. Pesticides can also alter the food web or water chemistry, indirectly affecting amphibian and aquatic reptile habitats or prey availability.

Detailed analysis of the magnitude of potential effects of herbicide use on amphibians and aquatic reptiles is provided in Attachment E5 to the FLA, *Pesticide Summaries and Risk Assessments for Exposure Scenarios for Pesticide Use under the Proposed Project* (PG&E 2024). The analysis includes types of herbicides, exposure estimates, and hazard quotients for acute and chronic exposure scenarios. Direct toxicological effects on amphibians from acute exposure are not anticipated for all herbicides except three (indaziflam, sulfometuron methyl, and triclopyr butoxyethyl ester [BEE]), and effects on amphibians from chronic exposure are not anticipated for all herbicides except one (clethodim). Hazard quotients are below the level of concern for all modeled exposure scenarios for aquatic reptiles (using fish-eating birds as a surrogate). Infrequent applications of herbicide in specific locations (i.e., once or twice per year), mobility of aquatic wildlife species, and implementation of avoidance and minimization measures in PG&E Proposed Measure No. 3, *Biological Resources Management Plan* (e.g., establishing aquatic habitat buffers, using targeted application methods), would reduce the potential for significant acute or chronic exposure on amphibians as a result of Proposed Project O&M activities.

Similarly, oil, gasoline, and other petroleum-based fluids could leak from machinery or spill during refueling and be discharged or carried by stormwater runoff into downstream waterbodies. Hazard tree removal and defensible space activities, especially those involving ground disturbance, could create areas of bare, disturbed soil and temporarily lead to increased erosion, discharge of suspended sediments, and turbidity in downstream waterbodies.

Implementation of measures contained in PG&E Proposed Measure No. 3, *Biological Resources Management Plan*; PG&E Proposed Measure No. 4, *Hazardous Substance Plan*, and PG&E Proposed Measure No. 8, *Transportation System Management Plan* would minimize and avoid effects of pollutants or runoff, such as sediment or hazardous material runoff from the use of vehicles or equipment, that have the potential to harm amphibians or aquatic reptiles and their habitats. Specifically, PG&E Proposed Measure No. 3 includes limited operating periods, biological monitoring support, and restricted work areas to avoid or minimize the potential for adverse effects on ESA-listed and special status amphibians and aquatic reptiles. PG&E Proposed Measure No. 3 also includes erosion control measures and best management practices to prevent soil disturbance, spoil wash, and erosion; minimize sedimentation in wetland areas and waterways; and ensure proper usage and safe application of pesticides around aquatic resources, including the use of pesticide formulations labeled for aquatic application and treatment buffers around aquatic habitats. PG&E Proposed Measure No. 4 would address the storage, transportation, spill prevention, cleanup, and disposal of hazardous substances associated with Proposed Project O&M activities. PG&E Proposed Measure No. 8 would also address erosion along Proposed Project roads and stream crossings to minimize sediment runoff. Therefore, there would be a less than significant impact.

Alterations to Habitat, Including Critical Habitat

Potential indirect adverse impacts to ESA-listed or other special status amphibians or aquatic reptiles resulting from habitat alteration in upland or aquatic habitats during Proposed Project O&M activities could include the following:

- Minor grading or ground disturbance associated with transmission and distribution line repairs, which may remove subterranean refuge habitat for California tiger salamander, western spadefoot, or Yosemite toad.

- Displacement or removal of leaf litter, wood cover, or other herbaceous materials during vegetation management or Proposed Project maintenance, which could alter microclimates (e.g., moisture and temperature) that amphibians depend on, resulting in less suitable or unsuitable habitat conditions.
- Chipping of materials, hazard tree felling, or other vegetation management activities that could cover upland refugia such as rodent burrows, rock crevices or root tangles, or create dispersal barriers between upland and aquatic habitats.
- Hazard tree removal, which could create sediment runoff to aquatic habitat by dropping debris or causing ground disturbance associated with site access (e.g., new skid trails or temporary staging areas).
- Implementation of Proposed Project O&M activities that could cause the creation of new trenches, holes, staging pipes, or tubes that could trap individuals, leaving them vulnerable to predation, desiccation, starvation, or injury.

With implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan* and PG&E Proposed Measure No. 8, *Transportation System Management Plan*, Proposed Project O&M activities are not anticipated to have significant impacts to occupied or potential habitat for special status amphibians or reptiles within the proposed FERC Project Boundary. In addition, Proposed Project O&M activities are not anticipated to have significant impacts to designated critical habitat for California tiger salamander and Yosemite toad within the proposed FERC Project Boundary because there would be no significant habitat modification or degradation in these areas. Potential habitat modification in designated critical habitat (e.g., from minor grading associated with transmission line repairs, hazard tree removal) would be at insignificant and/or discountable levels because these activities are not expected to significantly affect primary constituent elements for either species (detailed in *ESA-Listed Species Descriptions* [Attachment E of PG&E 2024]). For example, there would be no permanent loss of essential aquatic breeding features for California tiger salamander or Yosemite toad, and any effects on essential upland features are expected to be relatively minor in extent, compared with the availability of similar upland habitats nearby.

With implementation of PG&E Proposed Measure Nos. 3 and 8 and corresponding avoidance and minimization measures, impacts to habitat, critical habitat, and PCEs would occur at insignificant and/or negligible levels and any affected habitat would continue to serve the current intended conservation role for listed species. Therefore, there would be a less than significant impact.

Aquatic Invasive Species

The Proposed Project is not expected to have significant direct or indirect impacts from the spread of aquatic invasive species resulting from Proposed Project O&M or construction activities. One aquatic invasive species (American bullfrog [*Lithobates catesbeianus])* has been observed within FERC Project Boundary (PG&E 2024). Implementation of PG&E's existing aquatic invasive species protection measures would continue to reduce impacts to special status species, infrastructure, or other resources resulting from the spread of aquatic invasive species. Therefore, there would be a less than significant impact.

3.5.3.5 Special Status Terrestrial Wildlife and Birds

Routine Proposed Project O&M activities (described in Section 2.2.3) were evaluated for the potential to adversely affect wildlife resources. Proposed Project implementation would have no adverse population-level effects on wildlife species described in FLA section E.4.2.1 because these species commonly occur in the Proposed Project region and localized Proposed Project O&M activities would not affect the viability of their populations. Furthermore, implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, includes measures to avoid or minimize potential localized adverse effects on all wildlife.

The potential effects of routine Proposed Project O&M activities on special status terrestrial species are described in detail in subsequent sections. Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan,* would minimize or reduce the potential for adverse effects on special status wildlife species with the potential to occur within the proposed FERC Project Boundary, although unintentional adverse effects on certain special status species are possible during vegetation removal (including hazard tree removal). Therefore, there would be a less than significant impact.

Extended Helicopter Use

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan* (PG&E 2024, Attachment E2), during routine Proposed Project O&M activities that include helicopter operations involving repeated flyovers or hovering at low altitudes (e.g., transmission line inspection, vegetation management) would cause minor effects that are unlikely to adversely affect special status wildlife species, including raptors which are known to be sensitive to disruption from helicopters (Grubb and Bowerman 1997, Delany et al. 1999, Froneman 2006, Anderson 2007). Proposed Measure No. 3, *Biological Resources Management Plan* includes measures AVIAN-1, AVIAN-2, AVIAN-4, FISHER-5, and FISHER-10 to minimize the potential for audial or visual disturbance related to extended helicopter use during the reproductive season that may cause adults to flush from or abandon the nest or den, leaving eggs or young vulnerable. Additionally, PG&E's *Avian Protection Program* (APP) (PG&E 2017a) and *Nesting Bird Management Plan* (NBMP) (PG&E 2016) include best management practices that would also reduce the potential for adverse effects related to extended helicopter use on special status birds. Therefore, there would be a less than significant impact.

Heavy Machinery

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan* during routine Proposed Project O&M activities that include the use of heavy machinery (e.g., compactor, grader, excavator) would cause minor effects that are unlikely to adversely affect special status wildlife species. PG&E Proposed Measure No. 3, *Biological Resources Management Plan* includes measures AVIAN-1 through AVIAN-5; FISHER-1 through FISHER-15; WET-1; and AMM-1, AMM-4 through AMM-8, and AMM-11 to preserve valuable breeding or foraging habitat, restrict use of heavy machinery during sensitive life stages (e.g., denning or nesting season) when young (or cysts or eggs) are immobile or less mobile (i.e., unable to escape) or detrimental noise or vibration may disturb or agitate adults potentially causing flushing from or abandonment of nests, and minimize the potential for burying or crushing species that use ground-level or subterranean habitat (i.e., fisher [*Pekania pennanti*], Sierra marten [*Martes caurina sierrae*], western burrowing owl [*Athene cunicularia hypugaea*]).

Additionally, PG&E's APP (PG&E 2017a) and NBMP (PG&E 2016) include best management practices that would also reduce the potential for adverse effects related to heavy machinery use on special status birds.

The use of heavy machinery may affect, but is not likely to adversely affect, critical habitat for vernal pool fairy shrimp or fisher. Potential habitat modification in designated critical habitat (e.g., from minor grading associated with transmission line repairs) would be at insignificant and/or discountable levels; because these activities are not expected to significantly affect primary constituent elements or physical and biological features of critical habitat for either species (detailed in FLA Attachment E4, *ESA-Listed Species Descriptions* in PG&E 2024), critical habitat would continue to serve the current intended conservation role. Therefore, there would be a less than significant impact.

Vegetation Management

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan* (PG&E 2024, Attachment E2), PG&E's Avian Protection Program (APP) (PG&E 2017a), and PG&E's NBMP (PG&E 2016) during Proposed Project O&M activities that include vegetation removal (e.g., clearing, hazard tree removal) would cause minor effects that are unlikely to adversely affect most special status wildlife. Some vegetation removal activities (e.g., hazard tree removal) could potentially cause localized adverse population-level effects on California spotted owl (*Strix occidentalis occidentalis*), special status bats, and fisher.

If vegetation removal occurs during the breeding season, the potential for injury or mortality is greater for some species because vegetation may contain occupied mammal dens, bird nests, or bat roosts. Additionally, special status wildlife may be disturbed or harassed by noise or vibration generated by vegetation removal equipment (e.g., chainsaw, masticator, chipper). Disturbance occurring during the breeding season could lead to flushing or abandonment of nests, dens, or maternity colonies by adults, leaving eggs or young vulnerable. Measures AVIAN-1, AVIAN-2, AVIAN-4, FISHER-4, FISHER-10 through FISHER-15, and WET-1 in Proposed Measure No. 3, *Biological Resources Management Plan,* would limit vegetation removal or duration of activities during sensitive life stages in suitable breeding habitat, thereby reducing the potential for effects to minor levels. However, because California spotted owls and fishers are more likely to nest or den cryptically in hazard trees, unintended adverse effects may still occur. Similarly, measure BAT-1 is intended to encourage bats to leave the roost by creating a vibrational disturbance; however, during the maternity season if a special status maternity roost is present and non-volant young are unable to leave a roost in hazard tree(s), there may be unintended adverse effects at the localized population level, while effects would be minor at a landscape or population level due to the relatively small number of trees that would be removed relative to the number of trees present in nearby forested habitats. Pre-activity surveys for bats prior to hazard tree removal are not recommended due to the infeasibility of conducting emergence surveys to evaluate occupancy in a forest habitat (i.e., vegetation reduces backlight and visibility).

Special status wildlife may also be affected by loss of habitat from vegetation removal. Suitable foraging, rearing, and nesting habitat for special status wildlife is present throughout the proposed FERC Project Boundary; therefore, vegetation removal (including hazard trees) could affect habitat quality, composition, and/or connectivity through loss of cover, forest canopy and structure, or dispersal/migration corridors. Habitat loss may also affect future breeding success of special status raptors that exhibit nest fidelity (e.g.,

bald eagle [*Haliaeetus leucocephalus*]) because substantial energy is required to construct a new nest. Measures AVIAN-5, FISHER-1 through FISHER-3, and FISHER-6 through FISHER-13, included in Proposed Measure No. 3, *Biological Resources Management Plan,* would limit removal of forested habitat or features in and nearby suitable breeding or denning habitat for fisher and California spotted owl, thereby reducing the potential for indirect effects to minor levels for these species and others that use similar breeding habitats or features (e.g., Sierra marten). Similarly, measures AVIAN-3 and WET-1 would protect habitat for species that use ground-level or subterranean habitat (i.e., vernal pool fairy shrimp, vernal pool tadpole shrimp, western burrowing owl), and reduce the potential for indirect effects on these species to minor levels.

Vegetation removal, particularly hazard tree removal, may lead to adverse modifications to proposed critical habitat for fisher within the proposed FERC Project Boundary. Proposed critical habitat for fisher is found within the proposed FERC Project Boundary, a large portion of which has been extensively damaged by bark beetles (unrelated to existing Helms Project O&M activities) and therefore contains a high proportion of hazard trees (often requiring removal for safety, access, and protection of infrastructure). While applicable measures would be implemented (protecting fishers and their habitat), hazard tree removal may lead to adverse modifications to proposed critical habitat or physical and biological features (detailed in FLA Attachment E4, *ESA-Listed Species Descriptions* in PG&E 2024) that are essential to the conservation of the Southern Sierra Nevada distinct population segment (DPS) of fisher.

Pesticide Use

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, during routine Proposed Project O&M activities that include pesticide (i.e., herbicide and rodenticide) use would cause minor effects on special status wildlife.

Herbicide application during routine Proposed Project O&M activities is not anticipated to have detrimental effects on terrestrial wildlife. Wildlife could be exposed to herbicides if application occurs in or near suitable habitat. Animals could ingest water contaminated by a leak or spill or ingest prey (e.g., fish, small mammals, insects) that have been contaminated via direct application, contact with recently sprayed vegetation, or consumption of contaminated vegetation. Detailed analysis of the magnitude of potential effects of herbicide use is provided in Attachment E5 to the FLA, *Pesticide Summaries and Risk Assessments for Exposure Scenarios for Pesticide Use under the Proposed Project (*PG&E 2024); the analysis includes types of herbicides, exposure estimates, and hazard quotients for common exposure scenarios.

Hazard quotients are below the level of concern for all modeled exposure scenarios for raptors, bats, and mesocarnivores, but indicate the potential for acute toxicological effects on special status branchiopods (i.e., vernal pool fairy shrimp and vernal pool tadpole shrimp) (clethodim, fluroxypyr, glyphosate, indaziflam, triclopyr [BEE]) and passerines (e.g., willow flycatcher [*Empidonax traillii brewsteri*]) (aminopyralid and triclopyr [BEE, triethylamine, choline]) from the use of some herbicides. However, infrequent applications (i.e., once or twice per year) of herbicide in specific locations with supervision by a licensed PCA during all applications and implementation of avoidance and minimization measures included in PG&E Proposed Measure No. 3 (e.g., establishment of vernal pool habitat buffers, use of targeted

application methods), would reduce the potential for adverse effects from significant acute or chronic exposure on special status invertebrates or passerines as a result of Proposed Project O&M activities.

The use of rodenticides also has the potential to affect special status raptor and mesocarnivore species if they consume contaminated rodents (e.g., squirrels, rats, mice) or their carcasses; however, measure AMM-11 in PG&E Proposed Measure No. 3 would restrict the use of second-generation anti-coagulant rodenticides, reducing the risk of toxicity to non-target wildlife (CDPR 2018). Additionally, measure AMM-11 would further protect scavenging wildlife by ensuring any dispatched rodents are quickly collected or trapped and disposed of at approved off-site facilities. Therefore, there would be a less than significant impact.

Structure Modifications

Implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, during Proposed Project O&M activities that include structure modifications at Proposed Project facilities, including residential homes, to maintain structural integrity as they age would cause minor effects on special status bats. Examples of structure modifications that may cause minor effects on special- status bats include repairing or replacing a roof, attic vent, screen, or siding. The likelihood, manner, and degree of effect can vary based on the timing of disturbance. Effects on special status bats would be more significant if activities occur during sensitive maternity or hibernating life stages because maternity colonies support young that may not be able to fly, and waking a hibernating bat would force it to expend vital energy reserves required for surviving the duration of the winter season. Direct effects (i.e., mortality) may occur if adults or young are unintentionally enclosed in a building during an exclusion or if the activities at the site cause adults abandoning non-volant young. Indirect effects may occur if a significant roost site is lost with structure modification. PG&E Proposed Measure No. 3 includes measures BAT-2 and BAT-3 to limit activities that cause structure modification or loud noise during sensitive life stages (e.g., maternity or hibernating roosting seasons) and implement bat deterrents or exclusion devices to dissuade or prevent bats from roosting. Therefore, there would be a less than significant impact.

3.5.3.6 Special Status Plants

Potential effects of the Proposed Project's routine O&M activities (e.g., vegetation management, road or trail maintenance) and recreational use in or adjacent to botanical resources that could cause the removal or damage of communities, populations, or individuals were analyzed in conjunction with measures included in PG&E Proposed Measure No. 3, *Biological Resources Management Plan*.

Routine Helms Project O&M activities are described in Section 2.1.3, and recreational use is described in FLA Exhibit E, Section E.6 (PG&E 2024). Potential effects of herbicide application on botanical resources are analyzed in detail in FLA Attachment E5, *Pesticide Summaries and Risk Assessments for Exposure Scenarios for Pesticide Use* under the Proposed Project (PG&E 2024).

PG&E Proposed Measure No. 3 includes the following steps to ensure potential adverse effects on botanical resources would be avoided and/or minimized:

- Conduct periodic floristic surveys and consult the most up-to-date botanical survey results (e.g., Study Data Summary BR-2) to inform future Proposed Project O&M activities.

- Implement avoidance and minimization measures to reduce the potential for effects on botanical resources from Proposed Project O&M activities, including during herbicide application.
- Treat populations of invasive weeds of known concern using manual, mechanical, or chemical methods.

Implementation of these proposed measures would ensure that potentially adverse effects on botanical resources from Proposed Project O&M activities are avoided or reduced.

With implementation of PG&E Proposed Measure No. 3, the Proposed Project would not be likely to adversely affect critical habitat for ESA-listed plants. Designated critical habitat for three ESA-listed plant species (succulent owl's-clover, San Joaquin Valley Orcutt grass, and hairy Orcutt grass) is similar (i.e., vernal pools) and is located within the proposed FERC Project Boundary at lower elevations along the Helms-Gregg 230 kV Transmission Line. Measures to protect critical habitat for all three of these species, including the primary constituent elements for each of the three species (i.e., topographic features characterized by isolated mounds and inter-mound complexes and isolated vernal pools with underlying restrictive soil layers), are outlined in PG&E Proposed Measure No. 3, *Biological Resources Management Plan.*

Proposed measures include WET-1 (protects vernal pool habitat), AMM-1 (minimizes off-road travel), AMM-4 (minimizes soil and vegetation disturbance), AMM-5 (locates equipment storage and spoil sites away from waterbodies), AMM- 8 (implements erosion control measures), and AMM-11 (implements best management practices for herbicide application and timing, buffers aquatic habitat). Additionally, measures AMM-13 (use of certified weed-free material) and AMM-15 (cleaning sediment and vegetation off equipment from outside of the watershed) would limit the potential spread of non-native vegetation into critical habitat during Proposed Project O&M activities. Therefore, there would be a less than significant impact.

With implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, Proposed Project implementation would not be likely to adversely affect ESA-listed plants. No ESA-listed plants were documented within the FERC Project Boundary during botanical surveys for Study BR-2. If any ESA-listed species are documented in the future, measure SSP-1 (permanently mark populations for avoidance), measure SSP-2 (restricting timing of, in consideration of plant phenology), and measure SSP-3 (localized spot foliar application using low-volume, low-pressure backpack sprayers) in PG&E Proposed Measure No. 3, would ensure that activities may affect, but are not likely to adversely affect, ESA-listed plants.

Study BR-2 documented 12 occurrences of 2 special status species (spiny-sepaled button-celery [California Rare Plant Rank (CRPR) 1B.2] and Bolander's clover [CRPR 1B.2, SNF SCC]) within the FERC Project Boundary.

To avoid or minimize effects on special status plant individuals or populations from Proposed Project O&M activities or recreational use in or adjacent to these occurrences, PG&E would conduct comprehensive floristic surveys every five years for 17 years in areas where they routinely perform vegetation management activities to maintain up-to-date knowledge of special status plant occurrences, as outlined

in the PG&E Proposed Measure No. 3.[6] Additional measures to avoid adverse effects on special status plants, as outlined in PG&E Proposed Measure No. 3, include measures SSP-1 (permanently mark populations for avoidance), SSP-2 (restricting timing of, in consideration of plant phenology), SSP-3 (localized spot foliar application using low-volume, low-pressure backpack sprayers), and AMM-11 (best management practices for herbicide application and timing, buffers for sensitive resources). Therefore, there would be a less than significant impact.

Conclusion

Overall, impacts to species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS would 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, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (Less Than Significant Impact)

3.5.3.7 Riparian Habitat and Sensitive Natural Communities

Twenty-seven sensitive natural communities with a state ranking of S2 (imperiled) or S3 (vulnerable) cover 1,228.4 ac (2.3%) of the area within the proposed FERC Project Boundary and surrounding 0.5 mile. Eighteen of these sensitive natural communities, covering 376.0 ac, are classified as wetland vegetation communities; 44 wetlands were identified within the FERC Project Boundary and characterized during Study BR-3.

Measures to avoid these sensitive natural communities and wetlands, outlined in PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, include AMM-1 (minimizes off-road travel), AMM-4 (minimizes soil and vegetation disturbance), and AMM-5 (locates equipment storage and spoil sites away from waterbodies). Additionally, measures AMM-13 (use of certified weed-free material) and AMM-15 (cleaning sediment and vegetation off equipment from outside the watershed) would limit the potential spread of non-native vegetation into sensitive natural communities and wetlands due to Proposed Project O&M activities.

Measures to minimize the potential for adverse effects on wetlands (including sensitive natural communities that are wetlands) are included in PG&E Proposed Measure No. 3. If vegetation management needs to occur in or near wetlands, measures AMM-8 (erosion control measures), AMM-11 (use of pesticide formulations labeled for aquatic application), and WET-1 (exclusion zones around vernal pools) would minimize any adverse effects.

Potential effects of herbicide application on sensitive natural communities and wetlands (FLA Attachment E5, *Pesticide Summaries and Risk Assessments for Exposure Scenarios for Pesticide Use under the Proposed Project*) would be avoided or minimized by implementing PG&E Proposed Measure No. 3 and Proposed Measure No. 7, *Hazardous Substance Plan*. PG&E's Proposed Measure No. 3, also includes measure AMM-11, which would minimize the potential for herbicide drift through the use of best management practices for application methods and timing (e.g., no large-scale broadcast applications,

[6] After completion of the surveys in license year 17, the floristic survey monitoring period will be reassessed based on previous years' results to determine if the frequency should remain the same at 5 years, be extended to 10-year intervals or be discontinued.

implementation of no-spray buffers around aquatic habitat, and application only during periods of dry weather and low wind speeds). Therefore, there would be a less than significant impact.

3.5.3.8 State and Federally Protected Wetlands

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (Less Than Significant Impact)

See impact analysis under criteria (b) above for a discussion of potential impacts to wetlands. See impact analysis in (a) above for discussion of potential impacts to vernal pools and branchiopods. PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, (including AMM- 1, AMM-4, AMM-5, AMM-13, AMM-15, and WET-1) and Proposed Measure No. 7, *Hazardous Substance Plan* would be implemented to reduce potential impacts. Therefore, there would be a less than significant impact.

3.5.3.9 Migratory Corridors and Nursery Sites

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

Vegetation removal (including removal of hazard trees) could affect habitat quality, composition, and/or connectivity through loss of cover, forest canopy and structure, or dispersal/migration corridors for terrestrial wildlife and special status amphibians and reptiles. Habitat loss may also affect future breeding success of special status raptors that exhibit nest fidelity (e.g., bald eagle [*Haliaeetus leucocephalus*]) because substantial energy is required to construct a new nest. Measures AVIAN-5, FISHER-1 through FISHER-3, and FISHER-6 through FISHER-13, included in Proposed Measure No. 3, *Biological Resources Management Plan,* would limit removal of forested habitat or features in and nearby suitable breeding or denning habitat for fisher and California spotted owl, thereby reducing the potential for indirect effects to minor levels for these species and others that use similar breeding habitats or features (e.g., Sierra marten). Similarly, measures AVIAN-3 and WET-1 would protect habitat for species that use ground-level or subterranean habitat (i.e., vernal pool fairy shrimp, vernal pool tadpole shrimp, western burrowing owl), and reduce the potential for indirect effects on these species to minor levels. The Proposed Project could also impact the movement of any special status amphibians or reptiles through vegetation removal activities or transmission and distribution line O&M activities. However, avoidance and minimization measures provided in Measure No. 3, such as YT-5 to prevent material from vegetation management creating dispersal barriers for Yosemite toad, would avoid and minimize interference on the movement of special status amphibians or reptiles.

With implementation of PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, (including AVIAN-3, AVIAN-5, FISHER-1 through FISHER-3, FISHER-6 through FISHER-13, WET-1, and YT-5) impacts to native resident, migratory fish, wildlife species, established native resident, migratory wildlife corridors, and the use of native wildlife nursery sites would be less than significant.

As a part of relicensing study AR-1, PG&E conducted upstream passage assessments in tributary streams to Courtright Lake and Lake Wishon within the reservoir fluctuation zone. Although natural barriers were present, none of the migration barriers present were Helms Project-related barriers to movement. Therefore, there would be no impact.

3.5.3.10 Policies or Ordinances Protecting Biological Resources

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

The Proposed Project would not conflict with any local policies or ordinances protecting biological resources, such as tree preservation policies. The Proposed Project is located entirely within unincorporated Fresno County, and facilities are situated on federally managed land or within PG&E owner easements and rights-of-way. Fresno County does not have a tree preservation ordinance applicable to the Proposed Project area (Fresno County 2024). Additionally, because the Proposed Project does not include modifications to facilities or operations that would result in changes to existing land use, vegetation, or biological communities, it would not conflict with any local biological resource protection policies. Furthermore, the Proposed Project's continued operation, consistent with the existing FERC license, does not involve activities that would violate applicable Sierra National Forest land management policies related to vegetation or habitat protection. Therefore, there would be a less than significant impact.

3.5.3.11 Conservation Plans

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

The Proposed Project is not located within the boundaries of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other local, regional, or state habitat conservation plan (CDFW 2015). Therefore, there would be no impact.

3.6 Cultural Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?			X	
c) Disturb any human remains, including those interred outside of formal cemeteries?			X	

3.6.1 ENVIRONMENTAL SETTING

This section describes the existing environment for cultural resources within the Proposed Project site and evaluates the potential for impacts related to cultural resources to occur as a result of the Proposed Project. The term “cultural resources” refers to built environment resources (e.g., buildings, structures, objects, districts) and pre-European contact and historic-period archaeological resources. The Proposed Project’s impacts on tribal cultural resources are addressed in Section 3.19, *Tribal Cultural Resources.*

Information regarding baseline conditions for cultural resources within the Proposed Project area is based on the *Helms Pumped Storage Project FERC Project No. 2735 Application for New License Major Project -Existing Dam (PG&E 2024)*, Helms Pumped Storage Project, FERC Project No. 2735 Volume I: Project Overview and Summary of Results and Recommendation (PG&E 2024), Helms Pumped Storage Project, FERC Project No. 2735 Volume II: Archaeological Study Results (PG&E 2024), and Helms Pumped Storage Project, FERC Project No. 2735 Volume III: Historic Built Environment Study Results and Recommendations (PG&E 2024), and *Historic Properties Management Plan for the Helms Pumped Storage Project, Fresno and Madera Counties, California* (HPMP) (PG&E 2024).

To identify cultural resources within the FERC Project Boundary, the following tasks were completed by PG&E (1) records searches and archival research to identify cultural resources and cultural resources investigations that have been previously documented within the existing FERC Project Boundary and a 0.5 mile surrounding buffer; (2) a historical built environment survey conducted on July 20, 2022, and on September 26-28, 2022; and (3) an archaeological resources field pedestrian survey of the FERC Project Boundary between June 2022 to August 2023.

3.6.1.1 Built Environment

PG&E’s records searches, archival research, and a field survey identified 72 built environment resources within the FERC Project Boundary. Twenty-one (21) built-environment resources (45 years or older) are not eligible for the California Register of Historical Resources (CRHR) and do not qualify as a historical resource for the purposes of CEQA. Fifty-one (51) built environment resources do not yet meet the age

threshold to be considered a historical resource and have not been formally evaluated; however, these resources will meet the age threshold (less than 45 years) over the course of the Proposed Project.

3.6.1.2 Archaeological Resources

The archaeological records searches, map reviews, and pedestrian survey of the FERC Project Boundary identified a total of 85 previously recorded and previously undocumented archaeological sites in the FERC Project Boundary. These include 44 pre-European contact deposits, 15 historic-period, 3 multicomponent, and 23 isolated artifacts. Of these 85 resources, 58 were identified within the FERC Project Boundary as a result of the archaeological survey. These 58 resources include 44 pre-European contact archaeological sites, 12 historic-period archaeological sites, and 2 multicomponent sites. Seven pre-European contact sites could not be relocated or were not accessible during the survey as summarized in Table 3.6-1 below.

Table 3.6-1. Summary of Archaeological Sites Within the FERC Project Boundary

Site Type	Previously Undocumented/ Newly Recorded	Previously Recorded, Updated	Previously Recorded, Not Relocated/ Not Accessible	Total
Pre-European contact	14	23	7	44
Historic-period	6	6	0	12
Multicomponent	0	2	0	2
Total	**20**	**31**	**7**	**58**

Thirteen (13) of the archaeological sites are not eligible for listing in the CRHR and do not qualify as a historical resource for the purposes of CEQA. The remaining archaeological sites have not been formally evaluated for the CRHR.

3.6.2 IMPACT ANALYSIS

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)

For a cultural resource to be considered a historical resource (i.e., eligible for listing in the CRHR), it must generally be 50 years or older. Under CEQA, historical resources can include pre-European contact archaeological deposits, historic-period archaeological deposits, historic buildings, and historic districts. CEQA requires that agencies considering projects that are subject to discretionary action shall consider the potential impacts on cultural resources that may occur from project implementation.

3.6.2.1 Built Environment

Records searches, archival research, and a field survey identified 72 built environment resources within the FERC Project Boundary. Twenty-one (21) built-environment resources are not eligible for the CRHR and do not qualify as a historical resource for the purposes of CEQA. However, 51 built environment resources will meet the age threshold over the course of the Proposed Project and have the potential to be identified as historical resources through future evaluation. When these resources reach the age which

they could be considered a potential historical resource, PG&E will evaluate these resources as outlined in *Section 4.3.6 Resource Evaluations and Mitigation* of the HPMP (PG&E 2024). Should these resources qualify as a historical resource for the purposes of CEQA, a substantial adverse change in the significance of these historical resources could occur from demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (CEQA Guidelines Section 15064.5(b)(1). However, the HPMP requires PG&E to develop and execute resource-specific management measures to avoid and/or reduce impacts to these resources over the course of the new license as stipulated in *Section 5.3 Specific Measures for Built Environment Resources Once They Meet the Age Threshold for NRHP Eligibility*. Therefore, with the implementation of the HPMP, potential impacts to historical built environment resources would be less-than-significant and no additional mitigation measures would be required.

3.6.2.2 Archaeological Resources

Results of the records search and previous field investigations discussed above indicate that known archaeological sites that have not been evaluated but could be eligible for the CRHR are located within the FERC Project Boundary. A substantial adverse change in the significance of archaeological sites that qualify as historical resources could occur from demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (CEQA Guidelines Section 15064.5(b)(1).

When unevaluated archaeological sites could be impacted, pursuant to *Section 4.3.6 Resource Evaluations and Mitigation* of the HPMP, PG&E will evaluate these sites as historical resources through a testing or evaluation program (e.g., subsurface testing, archival research). The HPMP requires PG&E to develop a Historic Properties Treatment Plan (HPTP) that details the approaches and methods to be used for both evaluation and mitigation. The HPTP methods and protocols will be developed in consultation with participating Native American tribes and the appropriate land managing agency(ies).

Pursuant to *Section 5.2 Specific Measures for NRHP-Eligible or Unevaluated Archaeological Sites,* archaeological resources that qualify as historical resources will be subject to resource-specific management measures for the resources over the course of the new license. Therefore, with the implementation of the HPMP, potential impacts to archaeological sites that qualify as historical resources would be less-than-significant and no additional mitigation measures would be required.

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

According to the State CEQA Guidelines, archaeological sites that do not qualify as historical resources shall be assessed to determine if they qualify as “unique archaeological resources” (PRC Section 21083.2; State CEQA Guidelines Section 15064.5[c][3]). As discussed above, records search results and previous field investigations indicate that known archaeological sites are present within the FERC Project Boundary. A substantial adverse change in the significance of archaeological resources could occur from demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (CEQA Guidelines Section 15064.5). Therefore, the Proposed Project has the potential to result in adverse changes in the significance of archaeological resources.

c) Would the project disturb any human remains, including those interred outside formal cemeteries? (Less Than Significant Impact)

As discussed above, the archaeological records searches, map reviews, and pedestrian survey identified archaeological sites within the FERC Project Boundary which could contain human remains.

In the event that human remains are identified, these remains would be required to be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the PRC, as appropriate and *Section 4.3.8 Treatment of Human Remains* in the HPMP. Compliance with the California Health and Safety Code, Section 5097.98 of the PRC, and the HPMP would ensure that impacts to human remains would be less than significant and no additional mitigation measures would be required.

3.7 Energy

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

3.7.1 ENVIRONMENTAL SETTING

PG&E has a primary goal of operating and maintaining its hydroelectric systems in an efficient and reliable manner, and has the responsibility for generating, purchasing, transmitting, and distributing electricity to its customers. Electricity generated by the Helms Project is connected to the North American electric grid. The Helms Project is operated in conjunction with PG&E's other hydroelectric resources to help meet the electricity demands and ancillary service needs of PG&E's electricity customers. Specifically, the Helms Project is operated to assist in fulfilling local power needs for the transmission-constrained greater Fresno area. Power generated from the Helms Powerhouse is stepped up to 230 kilovolt (kV) and feeds two 230 kV transmission lines that go to the PG&E non-Project Gregg substation in the town of Madera, California. The Helms Project also provides the unique capability to pump water uphill when energy demand is low to utilize that water for power generation when energy demand is high. The Helms Project helps to fully integrate a significant amount of clean energy into the power supply using the pump-turbine units. The peaking operation of the Helms Project helps to minimize the operation of non-renewable, higher cost thermal electric generating plants and may decrease the price customers pay for power.

3.7.2 IMPACT ANALYSIS

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? (Less Than Significant Impact)

Energy consumed at the existing Helms Project includes transportation to and from the Helms Project area; electric, gasoline, or diesel-powered equipment; interior and exterior lighting; gate operation; and computers. PG&E uses vehicles that are compliant with state and federal vehicle emission standards and implements other measures, such as minimizing idling and proper vehicle maintenance, to avoid the unnecessary consumption of energy.

Under the Proposed Project, construction equipment operations would increase the consumption of fuel during the proposed improvements of the recreation sites. However, equipment would be operated on a short-term basis. PG&E currently uses energy efficient equipment that is properly

maintained and compliant with off-road emission standards that would continue to be used under the Proposed Project.

Aside from minor modifications to existing recreational facilities, the Proposed Project does not involve construction of any new structures. Additionally, since the Proposed Project is a continuation of existing O&M activities, it would not result in an operational phase that would differ notably from existing conditions related to energy resources. Therefore, the Proposed Project would have a less than significant impact related to wasteful, inefficient, or unnecessary consumption of energy resources, during Proposed Project construction or operation activities.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (No impact)

The continued O&M of the Proposed Project would not conflict with or obstruct a local or state plan for renewable energy or energy efficiency. More so, the peaking operation of the Helms Project helps to minimize the operation of non-renewable, higher cost thermal electric generating plants. In addition, the generation benefits that the Helms Project provides as a load balancer is called upon by the California Independent System Operator (CAISO) to quickly remove significant amounts of generation from the grid during periods of over-generation. The Proposed Project would continue to provide significant flexibility in balancing the grid and provide a significant amount of clean energy into the power supply, which is vital to the California electric grid. Therefore, the Proposed Project would have no impact related to obstructing a state or local plan for renewable energy or energy efficiency.

3.8 Geology and Soils

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?				X
ii. Strong seismic ground shaking?			X	
iii. Seismic-related ground failure, including liquefaction?				X
iv. Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on strata 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?				X
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial direct or indirect risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

3.8.1 ENVIRONMENTAL SETTING

3.8.1.1 Geologic Setting

The Proposed Project is situated in the Cascade-Sierra Mountains Physiographic Province. Facilities are situated along the western slope of a northwest-trending belt of rocks comprising the Sierra Nevada Mountain range, which is within the southern portion of the Cascade-Sierra Province. The geology in the region is typical of the high Sierra, consisting of Mesozoic granitic rock, predominantly granodiorite, with erosional remnants of older metamorphic rock, and Pleistocene to Holocene continental glacial deposits (PG&E 2021).

There are two geological areas in the Sierra National Forest and Proposed Project vicinity (i.e., within approximately 5 miles) identified as “special areas” by the USFS (PG&E 2021):

- The Courtright Intrusive Contact Zone Geological Area is an 11-acre area, located along the crest of a barren ridge, containing a variety of bedrock features characteristic of intrusive granite contacts in the Sierra Nevada Range. It is located at the south end of Courtright Lake on Helms Creek.
- The Kings Cavern Geological Area is a network of caverns and related features within a marble unit covering 388 acres of the Lower Kings River Roof Pendant. It is accessible by trail and is located south of Lake Wishon along the North Fork Kings River.

3.8.1.2 Faults/Seismic Activity

The Proposed Project is situated within the southern Sierran microplate, a relatively rigid block that moves around 12 to 14 millimeters per year northwest from the North American plate. The region has moderate seismic activity while the Proposed Project is in an area of low seismic activity. There are no Alquist-Priolo Earthquake Fault Zones identified within the Proposed Project area and there are also no faults mapped by the California Geological Survey (CGS) or USGS in the Helms Project vicinity (within approximately 5 miles of the Proposed Project). Additionally, Proposed Project facilities are built on granitic and metamorphic bedrock, therefore, there is no liquefaction hazard (PG&E 2021).

3.8.1.3 Soils

Most of the Proposed Project area consists of barren granitic exposures with thin patches of soil. The limited soil that is present is typically shallow and poorly developed. Soils were developed in-situ through the decomposition of granitic rock or transported glacial sediments. Soil depths are very irregular and highly dependent on slope steepness, degree of bedrock fracturing, and underlying rock type (PG&E 2021).

3.8.1.4 Landslides

Isolated rockfalls have occurred throughout the Proposed Project area and have the potential to affect Helms Project facilities. Some rockfalls may be related to ground shaking from distant earthquakes or periods of heavy precipitation, but most appear to be caused by erosional processes such as exfoliation and ice wedging. Although the soils in the Proposed Project area have a low to moderate potential for mass soil movement, some soil erosion has occurred on a limited scale on the shores of Courtright Lake, predominantly as a result of wave erosion (PG&E 2021).

3.8.2 IMPACT ANALYSIS

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. The 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? (No Impact)

There are no known Alquist Priolo Earthquake Zones in the Proposed Project area, nor are there any faults mapped by CGS or USGS in the Proposed Project vicinity (PG&E 2021). Therefore, there would be no impact related to risk to people or structures from rupture of a known fault.

ii. Strong seismic ground shaking? (Less Than Significant Impact)

Although there are no active faults near the Proposed Project area, the area may experience minor to moderate seismically induced ground shaking from earthquakes on faults of the Eastern Sierra Frontal or Owens Valley fault systems, located approximately 35 to 40 miles east of the Proposed Project (PG&E 2021). Proposed Project activities would be consistent with existing O&M activities that currently occur throughout the Proposed Project area to maintain the Helms Project and would not introduce new risk associated with strong seismic ground shaking. Modification of existing recreational facilities would also not introduce a new risk associated with strong seismic ground shaking. Therefore, the impact would be less than significant.

iii. Seismic-related ground failure, including liquefaction? (No Impact)

Proposed Project facilities are built on granitic and metamorphic bedrock, therefore, there is no liquefaction hazard (PG&E 2021). Additionally, only modifications to existing structures are proposed. No new structures would be constructed as part of the Proposed Project. Therefore, there would be no impact related to seismic related ground failure or liquefaction.

iv. Landslides? (Less Than Significant Impact)

The Proposed Project area has had a history of minor rockfalls and sliding in the area (PG&E 2021). Construction activities associated with the Proposed Project would be limited to improvements to existing recreational facilities. These activities would occur throughout the Proposed Project area. The Proposed Project includes continuation of existing O&M activities that also occur throughout the area. No new buildings would be constructed for the Proposed Project that could be potentially impacted by landslides. Therefore, the Proposed Project does not involve any actions that would expose people or structures to substantial adverse effects from a landslide. The impact would be less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil? (Less Than Significant Impact)

The construction of recreational improvements associated with the Proposed Project have the potential to remove topsoil and increase erosion in the Proposed Project area during active construction periods. Existing O&M activities that currently occur under the existing license would continue under the Proposed Project and therefore would not result in a change from existing conditions. Although recreational improvements may result in a small increase in erosion, PG&E proposes *a Biological Resources Management Plan* (PG&E Proposed Measure No. 3) which includes avoidance and minimization measures related to reducing soil erosion through use of previous disturbed areas for staging (AMM-4), storing equipment and spoils away from waterbodies (AMM-5), and implementing erosion control measures (AMM-8). Impacts related to erosion are expected to be less than significant.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? (No Impact)

The Proposed Project would not include construction of any new buildings or structures that could be impacted by unstable geologic units or soils that are unstable. All construction activities would occur within previous disturbed areas and developed sites. Therefore, there would be no impact related to an unstable geologic unit or soil.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? (No Impact)

Expansive soils have the potential to swell or shrink under changing moisture conditions. Proposed Project facilities are built on granitic and metamorphic bedrock which are not known to have the potential to shrink or swell due to moisture. Additionally, the Proposed Project would not include construction of any new buildings or structures that could be impacted by expansive soils. All construction activities would occur within previous disturbed areas and developed sites. Therefore, there would be no impact.

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

The Proposed Project does not include construction of new septic tanks or alternative wastewater disposal systems. The existing campgrounds and recreational areas include restrooms; however, maintenance of these facilities currently occurs and would continue under the new license. Impacts related to soil adequately supporting septic tanks or alternative wastewater disposal systems would not occur. Therefore, there would be no impact.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (No Impact)

The Proposed Project area does include two unique geologic areas (defined as special areas by the USFS), as described in the environmental setting above, however, the area does not include any known paleontological resources. Typically, paleontological resources are unknown in areas until significant excavation occurs. The Proposed Project does not include significant excavation or activities that could substantially impact any paleontological or the unique geologic resources in the area. All construction activities associated with the Proposed Project would occur within previously disturbed and developed areas. Therefore, there would be no impact to a unique paleontological resource or site or unique geologic feature.

3.9 Greenhouse Gas Emissions

Would the Project:	Potentially Significant Impact	Less than Significant 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?			X	
b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?			X	

3.9.1 ENVIRONMENTAL SETTING

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the greenhouse gases (GHGs) that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weight each gas by its global warming potential (GWP).

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. World-wide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions.

In 2006, the State Legislature enacted AB 32, also known as the California Global Warming Solutions Act of 2006. AB 32 required CARB to adopt statewide GHG emissions limits to achieve statewide GHG emissions levels at the same levels they were atmospherically in 1990 by the year 2020. Senate Bill (SB) 32 is an amendment to the California Global Warming Solutions Act (AB 32) and was signed into law on September 8, 2016. SB 32 required CARB to ensure that state GHG emissions are reduced to 40 percent below the 1990 emission level by the year 2030. AB 1279 was signed into law in 2022 and establishes the policy of the State to achieve carbon neutrality as soon as possible, but no later than 2045, and maintain net negative GHG emissions thereafter. AB 1279 would also ensure that by 2045 the Statewide anthropogenic GHG emissions are reduced by at least 85 percent below 1990 levels.

The SJVAPCD's *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* presents a tiered approach to analyzing project significance with respect to GHG emissions (SJVAPCD 2009). However, the SJVAPCD's guidance is outdated following the California Supreme Court's decision on the Center for Biological Diversity v. California Department of Fish and Wildlife on the Newhall Ranch project case and therefore was not used for this analysis. Rather, consistent with CEQA Guidelines Section 15064.4(b)(2), the lead agency has elected to compare the Helms Project emissions to the South Coast Air Quality Management District's (SCAQMD) screening-level threshold of 3,000 $MTCO_2e$ per year to determine whether the Proposed Project would generate GHG emissions that have a significant impact on the environment (SCAQMD 2008).

3.9.2 IMPACT ANALYSIS

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (Less Than Significant Impact)

GHG emissions are generated during construction activities from off-road equipment and on-road vehicle exhaust from worker vehicle trips and hauling truck trips. For this analysis, demonstrative emissions modeling was conducted to reflect construction activities that would be associated with the proposed improvements and reconstruction of existing recreational areas included as part of the *Recreation Management Plan*. Improvements and reconstruction would occur in various campgrounds, fishing areas, boat launches and picnic areas around Courtright Lake and Lake Wishon.

For this analysis, emissions modeling was conducted to reflect construction activities associated with the proposed minor improvements and reconstruction of existing recreational areas included as part of the *Recreation Management Plan*.

The emissions modeling conducted for the Proposed Project is based on the assumed disturbance area for the proposed recreation facility improvements and relies on model default values for the construction schedule, equipment types and hours of use, and worker and haul truck trips. This estimate is conservative and represents a good-faith effort to provide a quantitative analysis. It was assumed that all facility improvements would occur at the same time to account for any potential overlap in construction activities.

Table 3.9-1 presents a summary of the estimated GHG emissions that would result from Proposed Project construction. Because construction GHG emissions are temporary, a common professional practice is to amortize the construction emissions over the life of the Proposed Project, which is conservatively assumed to be 30 years (SCAQMD 2008).

Table 3.9-1. Construction Greenhouse Gas Emissions

Construction Year	Emissions ($MTCO_2e$)
2029	312
2030	40
Project Total	*352*
Project Total Amortized Over 30 Years	*11.7*
Threshold of Significance	**3,000**
Exceeds Threshold?	***No***

Source: PG&E 2021

As presented in the table, modeled GHG emissions from construction of the Proposed Project would be well below the significance threshold applied in this analysis.

Implementation of the Proposed Project would include minor improvements and modifications to existing facilities and would not result in a permanent increase in population, housing, employment, or vehicle trips in the region. As a result, the Proposed Project's operational emissions would be similar to existing conditions.

Based on the discussion above, implementation of the Proposed Project would not generate GHG emissions, either directly or indirectly, that would be considered to have a substantial adverse effect on the environment, and the impact would be less than significant.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? (Less Than Significant Impact)

CARB approved the 2022 Scoping Plan in December 2022, which built upon the 2008 and 2017 Scoping Plans in order to meet California's SB 32 and AB 1279 GHG reduction targets. For this analysis, the applicable plan adopted for the purpose of reducing GHG emissions is the CARB's 2022 Scoping Plan (CARB 2022). The action items identified in the 2022 Scoping Plan are primarily focused on reducing sources of operational GHG emissions through electrifying transportation, reducing VMT, and decarbonizing buildings, among others. These items apply to local governing agencies and land development projects and are not applicable to the proposed hydroelectric relicensing Project. However, with relicensing of the Proposed Project, the existing facilities would continue to generate renewable electricity via hydroelectric power. The Proposed Project is consistent with the GHG reduction goal established in AB 1279 as well as the requirements for renewable electricity, such as SB 100 – California Renewables Portfolio Standards Program. As a result, the Proposed Project would directly support the carbon neutrality goal of the 2022 Scoping Plan.

Considering the above, the Proposed Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, the impact would be less than significant.

3.10 Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less than Significant 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?			X	
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?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
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?				X
e) For a project located within an airport land use compatibility plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the Project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

3.10.1 ENVIRONMENTAL SETTING

As used in this section, the term “hazardous material” is defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. As used in this section, the term “hazardous waste” generally refers to a hazardous material that has been used for its original purpose and is about to be discarded or recycled.

Specifics related to hazardous materials sites, schools, airports, emergency response plans, and wildfire risk within the Proposed Project area are described in the impact analysis below.

3.10.2 IMPACT ANALYSIS

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

AND

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)

Aside from minor modifications to existing recreational facilities infrastructure, the Proposed Project does not involve any new construction or expansion that would result in substantial increases in hazardous materials. Existing O&M activities such as inspections, pest management, road maintenance, vegetation management, etc. would not substantially change from current conditions, and therefore would not result in an increase in hazardous materials.

The recreational facilities improvements may involve use of hazardous materials such as oil and gas, paint, or other wood treatments. However, these materials would be handled in accordance with the *Hazardous Substance Plan* (PG&E Proposed Measure No. 4), which is included as a condition of the new license. The *Hazardous Substance Plan* will include measures for safe transport and handling of hazardous materials within the Proposed Project area, a description of spill clean-up equipment, requirements for reporting of any hazardous materials spills, and procedures for clean-up and disposal of hazardous substances. Therefore, the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or reasonably foreseeable upset and accident conditions. The impact would be less than significant.

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

There are no existing schools within one-quarter mile of the Proposed Project. Therefore, no impacts would occur.

d) Would the project be located on a site which is included on a list of hazardous materials sites which 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 State Water Resources Control Board's (State Water Board) GeoTracker database and the California Department of Toxic Substances Control's (DTSC) EnviroStor database were reviewed for information on existing hazardous materials sites in proximity to the Proposed Project area. Based on a review of these resources, the Proposed Project is not located on a site that is included on the listing of active hazardous materials sites (State Water Board 2025, DTSC 2025). As such, no impact would occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a

safety hazard or excessive noise for people residing or working in the Project area. (No Impact)

Although there is a private airport, the Sierra Sky Park Airport, within 2 miles of the Proposed Project, the Proposed project does not include construction of any new buildings or structures designed for human habitation. No recreational improvements would occur near the airport. Therefore, there is no impact.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (Less Than Significant Impact)

The Fresno County General Plan and Fresno County Multi-Jurisdictional Hazard Mitigation Plan include multiple goals and policies that specify requirements for adequate emergency access and response activities necessary to reduce Fresno County's vulnerability to hazards (Fresno County 2024, Fresno County 2018).

The Proposed Project does not involve any new construction of buildings or roads that would result in interference with emergency response plans or emergency evacuation plans for the area. Improvements to recreational facilities would occur within the existing areas within the FERC Project Boundary. In addition, the improvements would not result in substantial changes to roads or traffic congestion that could impede mobility of emergency personnel or recreational users entering and exiting the area. Therefore, the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The impact would be less than significant.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? (Less Than Significant Impact)

The Proposed Project area is located in a Federal Responsibility Area (FRA), a State Responsibility Area (SRA), and a Local Responsibility Area (LRA) (CALFIRE 2025). A few LRA Very High hazard areas occur in the Proposed Project area, and the mid-elevation portion of the Helms-Gregg 230 kV Transmission Lines is in High to Moderate hazard areas (PG&E Proposed Measure No. 7, *Fire Management and Response Plan*). The Proposed Project does not involve any new construction or expansion that would result in substantial increases in potential for loss, injury, or death involving wildland fires. Recreational facilities improvements may involve use of equipment and vehicles which could result in an increase fire risk, if not managed appropriately. However, issuance of the new license includes implementation of a *Fire Management and Response Plan* (PG&E Proposed Measure No. 7). The *Fire Management and Response Plan* includes requirements for prevention and suppression, adherence to applicable federal, state and local laws and regulations, adherence to utility standards, approvals for burning, procedures for use of tools and equipment during a fire precautionary period, fuels treatment activities, and requirements for reporting fires. Therefore, the Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. The impact would be less than significant.

3.11 Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would			X	
i. result in substantial erosion or siltation on- or off-site;			X	
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;				X
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				X
iv. impede or redirect flood flows?				X
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

3.11.1 ENVIRONMENTAL SETTING

3.11.1.1 Hydrology

Courtright Lake

Courtright Lake, at its normal maximum water surface elevation (NMWSE) of 8,184.0 feet above mean sea level (msl), has a maximum storage capacity of 123,286 ac-ft and a surface area of approximately 1,632 acres. Helms and Dusy creeks are the primary inflows, while the primary outflow is Helms Creek, a tributary to the North Fork Kings River.

Lake Wishon

Lake Wishon, at its NMWSE of 6,550.0 feet above msl, has a maximum storage capacity of 129,118 ac-ft and a surface area of approximately 1,025 acres. The North Fork Kings River, Short Hair Creek, and Woodchuck Creek are the primary inflows, while the primary outflow is the North Fork Kings River.

North Fork Kings River

The North Fork Kings River originates at an elevation of approximately 12,000 feet at the White Divide within the John Muir Wilderness and extends 40 miles to where it joins the Kings River at an elevation of 973 feet near Balch Camp (River Mile [RM] 0.0). Named tributaries to the North Fork Kings River include, from upstream to downstream: Fall Creek, Meadow Brook, Fleming Creek, Post Corral Creek, Helms Creek, Dusy Creek, Woodchuck Creek, Short Hair Creek, Long Meadow Creek, Teakettle Creek, Rancheria Creek, Mule Creek, Williams Creek, Black Rock Creek, Weir Creek, Patterson Creek, Basin Creek, and Dinkey Creek.

Helms and Dusy creeks, which drain into Courtright Lake, begin at an elevation near 10,000 feet within the John Muir and Dinkey Lakes wilderness areas. At their confluence with Courtright Lake, Helms and Dusy creeks collectively comprise roughly 60 percent of the drainage area upstream of the dam. Helms Creek flows 2.7 miles from Courtright Dam to the confluence with the North Fork Kings River.

From its confluence with Helms Creek, the North Fork Kings River flows 0.7 mile to where it enters Lake Wishon. From Wishon Dam, the North Fork Kings River flows 8.1 miles to where it enters Black Rock Reservoir (maximum storage capacity of 1,260 ac-ft at its NMWSE of 4,097.0 feet), impounded by Balch Diversion Dam (non-Project).

The North Fork Kings River flows 5.0 miles from Balch Diversion Dam to where it enters Balch Afterbay (maximum storage capacity of 319 ac-ft at its NMWSE of 1,703.0 feet), which also receives inflow from both Balch powerhouses. From Balch Afterbay Dam, the North Fork Kings River flows 4.9 miles to where it converges with the Kings River, which is approximately 20 RM upstream of USACE's Pine Flat Lake (maximum storage capacity of 1,000,000 ac-ft).

3.11.1.2 Water Quantity and Uses

The Helms Project's upper reservoir, Courtright Lake, has a usable storage of 123,184 ac-ft and sits at an elevation of 8,184 feet NMWSE, while the lower reservoir, Lake Wishon, has a usable storage of 128,606 ac-ft sits at an elevation of 6,550 feet NMWSE. The Helms Project generates power by releasing water from Courtright Lake into Lake Wishon for approximately 6 hours daily, though this may range from 4 to 12 hours during the week.

The Helms Project pumps water from Lake Wishon back to Courtright Lake during periods of low energy demand or high energy availability, and during weekends, and releases water during peak demand periods, typically late afternoon through early evening. During generation, Courtright Lake's water surface elevation (WSE) drops by approximately 1.25 feet each, and during pumpback rises by approximately 1.2 feet each day. During generation, Lake Wishon's WSE rises by approximately 1.6 feet each day, and during pumpback drops by approximately 1.5 feet. In spring, after both Lake Wishon and Courtright Lake fill, required downstream releases from both Wishon and Courtright dams, as part of PG&E's Haas-Kings

Hydroelectric Project's (FERC Project No. 1988), influence their respective water surface elevations, and Lake Wishon maintains a lower water surface elevation than Courtright.

3.11.1.3 Water Quality

This section describes water quality in Courtright Lake and Lake Wishon using data collected during 2022 and 2023 relicensing surveys (PG&E 2024), data that are available for 2015 on the California Environmental Data Exchange Network (CEDEN), and historical existing and relevant water quality data collected between 1984 and 1988 in Courtright Lake and Lake Wishon, pursuant to Article 48 of the current License (PG&E 1990). These data include in situ measurements, water chemistry (general chemistry, metals, nutrients, and chlorophyll-a as an index of algal productivity), and bacteria.

Water quality in Courtright Lake and Lake Wishon is oligotrophic (i.e., low turbidity, low total suspended solids) with low mineral content (i.e., low specific conductivity, low hardness, low total dissolved solids) and low buffering capacity (i.e., low alkalinity), and low levels of algal nutrients. Water quality was consistent with the applicable Central Valley Regional Water Quality Control Board's Water Quality Control Plan for the Tulare Lake Basin (Tulare Lake Basin Plan) water quality objectives relevant to the Proposed Project with two exceptions (i.e., dissolved oxygen, pH). Specific water quality parameters are discussed below.

Temperature

Strong thermal stratification was observed in Courtright Lake and Lake Wishon in August and September 2023 and little thermal variation was observed throughout the water column after the reservoir turned over in fall (October 2023) (FLA Attachment E3, Study Data Summary WR-1 in PG&E 2024). In 2023, the Helms Project's intake-discharge structures in Courtright Lake and Lake Wishon were located at depths ranging from 59.7 to 67.3 meters and 33.7 to 47.1 meters, respectively, relative to the water surface elevation with depths reflecting seasonal fluctuations in reservoir water surface elevation; the intake structures themselves remain at fixed elevations. The intakes are located where water temperatures are coldest during the summer due to thermal stratification (PG&E 2024). Both reservoirs exhibit thermal stratification in the summer and occasionally freeze for a short period during the winter. Water temperatures reflect similar patterns to historical data collected in July from 1984 through 1988 in Courtright Lake and Lake Wishon (PG&E 1990). The maximum recorded temperatures in both reservoirs did not exceed 20 degrees Celsius (°C), which are considered suitable for trout species (Moyle 2002, PG&E 2024).

Dissolved Oxygen

In Courtright Lake and Lake Wishon, a dissolved oxygen gradient was apparent in August and September 2023 with lower concentrations of dissolved oxygen in warmer surface waters and higher concentrations of dissolved oxygen in cooler deeper waters (FLA Attachment E3, Study Data Summary WR-1 in PG&E 2024). During October 2023, the reservoirs exhibited little dissolved oxygen variation throughout the water column. Dissolved oxygen concentrations measured during 2023 ranged from 6.7 to 9.9 milligrams per liter (mg/L) in Courtright Lake and 7.6 to 10.0 mg/L in Lake Wishon (FLA Figures E.3.2-3 and E.3.2-4). Similar dissolved oxygen concentrations were found in Courtright Lake near Marmot Campground during sampling conducted from July through August 2015 (7.2–7.5 mg/L) (CEDEN 2020) and in historical data collected in July from 1984 through 1988 in Courtright Lake (6.8–9.8 mg/L) and Lake

Wishon (6.8–10.5 mg/L) (PG&E 1990). Dissolved oxygen concentrations were below the 9 mg/L Tulare Lake Basin Plan numerical water quality objective in surface waters during August and September 2023 and throughout the reservoir water columns in October 2023.

Electrical Conductivity

Electrical conductivity measurements collected during 2023 in Courtright Lake (7.6–14 micro-siemens per centimeter [µS/cm]) and Lake Wishon (6.3–9.0 µS/cm) were low (PG&E 2024). These results are similar to those collected from July through August 2015 in Courtright Lake near Marmot Campground (15.3–16.7 µS/cm) (CEDEN 2020) and historical data collected in July from 1984 through 1988 in Courtright Lake (1.4–34.0 µS/cm) and Lake Wishon (2.7–17.1 µS/cm) (PG&E 1990). Specific conductivity is primarily affected by the geology of a water body. Low conductivity is attributed to granitic bedrock which does not dissolve into ionic components, as is the case in Courtright Lake and Lake Wishon (USEPA 2012). Significant changes in conductivity are often indicative of discharge or source pollution (USEPA 2025). The specific conductivity measurements collected during 2023 were less than the 100 micromhos per centimeter (µmhos/cm) maximum electrical conductivity objective in the Tulare Lake Basin Plan.

pH

Low to slightly acidic pH measurements were recorded in Courtright Lake (5.3–6.7 standard units [s.u.]) and Lake Wishon (4.9–6.7 s.u.) during 2023 (FLA Attachment E3, Study Data Summary WR-1 in PG&E 2024). The pH in the water columns decreased slightly with depth. pH measurements in 2023 were lower than measurements during July through August 2015 in Courtright Lake near Marmot Campground (7.7–8.0 s.u.) (CEDEN 2020) and historical pH data collected in July from 1984 through 1988 in Courtright Lake (6.6–7.6 s.u.) and Lake Wishon (6.4–7.5 s.u.) (PG&E 1990). Low pH concentrations are likely due to the low buffering capacity (i.e., low total alkalinity) in Courtright Lake and Lake Wishon (PG&E 2024). The pH measurements collected during 2023 were predominantly less than the 6.5 s.u. Tulare Lake Basin Plan numerical water quality objective.

Alkalinity and Hardness

Total alkalinity (<4 mg/L as $CaCO_3$) and hardness (<3 mg/L as $CaCO_3$) were low in surface and bottom water grab samples collected during August, September, and October 2023 in Courtright Lake (2.7–3.2 mg/L) and Lake Wishon (2.5–3.2 mg/L) (PG&E 2024). Low alkalinity was also observed in historical data collected from July 1984 through 1988 in Courtright Lake (0.5–17 mg/L) and Lake Wishon (0.01–16 mg/L) and is typical for Sierra Nevada lakes (PG&E 1990). The total alkalinity measurements collected during 2023 were less than the USEPA national water quality criteria (20 mg/L [4-day average]) for the protection of freshwater aquatic life (USEPA 2023).

Biostimulatory Substances and Primary Productivity

Courtright Lake and Lake Wishon exhibit characteristics of oligotrophic reservoirs with low chlorophyll-a (<3 micrograms per liter [µg/L]) and nutrient concentrations (FLA Attachment E3, Study Data Summary WR-1 in PG&E 2024). Nutrient concentrations in surface and bottom waters were generally similar. Neither low dissolved oxygen nor elevated concentrations of total ammonia and phosphorus were found in bottom waters when the reservoirs were stratified, suggesting that internal nutrient loading is low (FLA

Attachment E3, Study Data Summary WR-1 in PG&E 2024). Nitrite, total ammonia, orthophosphate, and dissolved orthophosphate were below the detection limits in all samples collected.

Toxicity

Rainbow trout were collected in Courtright Lake and Lake Wishon in 2007 and 2008 as part of statewide fish mercury screening (Davis et al. 2010). Two fish were collected in each reservoir, and concentrations of mercury were less than 0.07 parts per million (ppm), which is below the California Office of Environmental Health Hazard Assessment (OEHHA) threshold of 0.08 ppm for mercury concentrations in fish that pose a potential public health concern (Lloyd and Denton 2005).

Oil and Grease

Oil and grease were not detected at concentrations at or above the laboratory method reporting limits (i.e., >1 mg/L) during 2023 (FLA Attachment E3, Study Data Summary WR-1 in PG&E 2024). Historically oil and grease have not been detected in Courtright Lake and Lake Wishon during routine Helms Project operations (FERC 2022). Three oil spill incidents occurred during routine Helms Project operations due to equipment malfunction, as described below.

- A transformer leaked approximately 149 gallons of oil at the Helms Support Facility on February 10, 2017, approximately 2.3 miles (straight-line distance) west of Lake Wishon. The oil was released to a paved area but ran off to a natural drainage that terminated at Helms Support Facility Meadow 13 due to snow. Oil absorbent pads and booms were immediately deployed in accordance with PG&E's incident response. Oil spill clean-up efforts included removal of oily water and snow over a period of 5 days. Oil booms stayed in place until after the snow melted. It was unlikely that the oil sheen migrated into the Helms Support Facility Meadow 1 due to the distance from the spill area and amount of snow present. Based on desktop analysis, minor effects on terrestrial and aquatic resources were anticipated (PG&E 2017b).
- Less than 1 gallon of hydraulic oil leaked into Courtright Lake directly above the Courtright Intake-Discharge Structure gate on September 10, 2017. The Courtright Intake-Discharge Structure is located approximately 900 feet northwest of Courtright Dam. The leak occurred during a planned outage for the Helms Project. Containment booms and buoys were in place as a preventative measure during the outage, and PG&E crews immediately responded to the release of oil by deploying additional on-site booms and applying oil absorbent pads. It was concluded that the oil spill did not likely have measurable effects on aquatic resources based on the small size of the release (less than 1 gallon) relative to the large volume of water in Courtright Lake (68,600 ac-ft at the time of the incident) (PG&E 2017c).
- A hydraulic oil release in Courtright Lake was identified on February 16, 2022, and a second incident occurred during a repair on April 28, 2022. In February, approximately 200 gallons of oil were released into Courtright Lake due to a Courtright Intake-Discharge Structure gate malfunction, affecting approximately 750,000 square feet (sq ft) of the reservoir. In April 2022, approximately 100 gallons of oil were released due to a fault in the hydraulic lines during testing of the Courtright Intake-Discharge Structure gate. Mitigation efforts (e.g., absorbent booms, oil skimmer, and hand-skimming) were implemented in accordance with PG&E's incident response to prevent the spread of oil. After completion of the oil removal efforts and demobilization, no oil

or grease was detected in water samples collected from Courtright Lake. During the two incidents, no oil or grease was detected downstream in Helms Creek or in Lake Wishon, and no significant effects on beneficial uses were identified related to the incident (FERC 2022). FERC considered the February 16, 2022, incident a violation of Standard Article 19 of the Helms Project license because the oil release was the result of inadequate maintenance and inspection activities for the containment domes and resulted in pollution of Courtright Lake (FERC 2022).

Sediment, Settleable Material, and Suspended Material

Because the Proposed Project does not include the construction or modification of dams or changes to existing flow release operations, and most Helms Project roads in the vicinity of Courtright Lake and Lake Wishon are paved, the potential for erosion is primarily associated with operations at the two Helms Project reservoirs. As water is moved back and forth between the two lakes, the WSEs fluctuate and expose littoral areas of the reservoirs. Water surface fluctuations have the potential to increase erosion along the shoreline, although much of the shoreline is composed of bedrock outcrops that are resistant to erosion (PG&E 2024). When the Helms Project was planned, the stirring up of accumulated silt on the bottom of Lake Wishon by water released through the Wishon Intake-Discharge Structure was a concern. As such, the Wishon Intake-Discharge Structure was oriented away from the north end of the lake where a large amount of silt had accumulated to minimize turbulence and prevent stirring up silt (Chen 1972). The Wishon Intake-Discharge Structure is approximately 850 feet east of the Helms Powerhouse portal door and approximately 1,500 feet north of Short Hair Creek. Additional discussion on soils, hillslope processes, and geomorphology in the vicinity of Courtright Lake and Lake Wishon is provided in Section E.2.5.8 of the Helms FLA (PG&E 2024).

As described in Section E.3.1 of the FLA (PG&E 2024), the Helms Project generates power by releasing water from Courtright Lake, conveying it through the Helms Powerhouse, discharging it into Lake Wishon, and then pumping water back to Courtright Lake from Lake Wishon, via Helms Powerhouse, during periods of low energy demand. As water is moved back and forth between the two reservoirs, the WSEs fluctuate and expose littoral areas. Additionally, bedrock outcrops are prevalent along the shorelines of Courtright Lake and Lake Wishon, and the shorelines are barren and rocky with only small patches of soil scattered on the bedrock slopes.

On September 29, 1982, the Lost Canyon Pipe at the crossing of Lost Canyon Creek, a tributary to Short Hair Creek, failed, and approximately 1.75 million cubic yards of material was scoured from the Lost Canyon Creek and Short Hair Creek streambeds. Much of the material was deposited in an enlarged delta that is still present at the mouth of Short Hair Creek at Lake Wishon. On March 20, 1985, PG&E entered a Memorandum of Agreement (MOA) regarding Lost Canyon Mitigation with the USFS and California Department of Fish and Game (CDFG, now CDFW). The MOA identified revegetation and re-channelization, as well as trout, water quality, photographic, and erosion monitoring in Lost Canyon Creek and Short Hair Creek, including other mitigation actions identified in the MOA (PG&E 1995). Mitigation monitoring of Lost Canyon Creek and Short Hair Creek indicated that there were no long-term effects on water quality and fisheries (PG&E 1993, 1999).

Total suspended solids and total dissolved solids were <2.8-4 mg/L in Courtright Lake and Lake Wishon during 2023 monitoring.

Turbidity

Turbidity was low (<0.45 nephelometric turbidity units [NTUs]) and water clarity was high in Courtright Lake and Lake Wishon during August, September, and October 2023 (FLA Attachment E3, Study Data Summary WR-1 in PG&E 2024). Low turbidity (<2.5 NTU) was also measured at Courtright Lake near Marmot Campground in July through August 2015 (CEDEN 2020). Additionally, during historical monitoring, turbidity in Lake Wishon was low and not statistically different during pre-operation (1972–1983) and operation (1984–1988) of the Helms Pumped Storage Project (PG&E 1990).

Bacteria

Bacteria (fecal coliform, total coliform, and *Escherichia coli* [*E. coli*]) monitoring occurred during 5 days in a 30-day period surrounding the Labor Day (September 4, 2023) weekend. Samples were collected at public recreation sites at two locations in Courtright Lake: offshore of Marmot Rock Campground, and near the Wee-Mee-Kute Fishing Access, and at two locations in Lake Wishon: near the Short Hair Fishing Access and the southwestern corner of the lake near the Wishon Boat Launch (FLA Attachment E3, Study Data Summary WR-1 in PG&E 2024). Bacteria results at all sites were low and predominantly less than method reporting limits. *E. coli* concentrations were less than the Tulare Lake Basin Plan numerical water quality objective.

Other

Ammonia

Total ammonia was less than laboratory detection limits in all samples collected in Courtright Lake and Lake Wishon during 2023 sampling; therefore, un-ionized ammonia is considered near zero.

Chemical Constituents

Total alkalinity measurements collected during 2023 were less than the USEPA national water quality criteria (20 mg/L [4-day average]) for the protection of freshwater aquatic life (USEPA 2023). Furthermore, sampling in 2023 did not indicate any instance of other chemical constituent concentrations (e.g., un-ionized ammonia and organic compounds) that exceeded Tulare Lake Basin Plan criteria for aquatic life protection. Primary and secondary water quality standards for potable water uses do not apply to the Proposed Project because beneficial uses of potable water supply (DOM, MUN) are not designated for waters for the upper North Fork Kings River (CVRWQCB 2018).

Color

No discoloration in Courtright Lake and Lake Wishon has been documented, and the Proposed Project does not release constituents that would affect water color.

Floating Material

The Proposed Project does not release floating material into Courtright Lake or Lake Wishon.

Pesticides

Proposed Project O&M activities use herbicides as part of vegetation management and rodenticides for rodent control. However, future pesticide use is not expected to impact water quality with the implementation of measures outlined in Proposed Measure Nos. 3 and 4 (FLA Attachment E2 in PG&E

2024) and standard BMPs. Additionally, no pesticides have been detected in waters in the vicinity of the Proposed Project.

Radioactivity

The Proposed Project does not release radionucleotides.

Salinity

The Proposed Project does not release chemical constituents that affect salinity. Specific conductivity is low in Courtright Lake and Lake Wishon, and no measurements exceeded the Tulare Lake Basin Plan numerical water quality objective (100 µmhos/cm) (CEDEN 2020; PG&E 1990).

Tastes and Odors

The Proposed Project does not release substances that would affect the taste or odor of water.

3.11.2 APPLICANT PROPOSED MEASURES

PG&E's Proposed Project includes the following three proposed measures and associated management plans with provisions related to water use and quality:

- **PG&E Proposed Measure No. 3, Biological Resources Management Plan;** Includes erosion control measures (AMM-1, AMM-4, AMM-5, AMM-8, WET-1), measures outlining BMPs for equipment maintenance, hazardous chemical spills (AMM-6, AMM-7) and leak prevention and measures (AMM-11) outlining BMPs for proper and safe application of pesticides and herbicides.
- **PG&E Proposed Measure No. 4, Hazardous Substance Plan;** Includes measures for spill prevention, cleanup, and disposal of hazardous substances.
- **PG&E Proposed Measure No. 8, Transportation System Management Plan**; Includes BMPs to control sedimentation and minimize inorganic sediments entering Project-affected waters.

3.11.3 IMPACT ANALYSIS

a) Would the project violate any water quality standards or waste discharge requirements? (Less Than Significant Impact)

Water Quantity and Use

PG&E's Proposed Project, as described in Section A.4.0 of Exhibit A and Section B.6.0 of Exhibit B of the Helms FLA (PG&E 2024), would have no adverse effect on water quantity or use; PG&E proposes to continue to operate the Proposed Project consistent with current operations. The Proposed Project does not involve modifications to any Helms Project facilities that would affect the timing and magnitude of water exchange between Courtright Lake and Lake Wishon (Exhibit C of PG&E 2024). Therefore, there would be no impact.

Water Quality

With implementation of the PG&E Proposed Measure No. 3, *Biological Resources Management Plan*, Proposed Measure No. 4, *Hazardous Substance Plan*, and Proposed Measure No. 8, *Transportation System Management Plan*, Proposed Project O&M activities in or adjacent to water resources would have

little to no adverse effects on water quality in Courtright Lake or Lake Wishon, including direct effects related to water temperature, dissolved oxygen, water chemistry, and pollution.

PG&E's Proposed Measure No. 3, *Biological Resources Management Plan* (PG&E 2024, Attachment E2), includes the following steps to avoid and/or minimize potential adverse effects on water quality:

- Implement erosion control measures and best management practices to prevent soil disturbance, spoil wash, and erosion and minimize sedimentation in wetland areas and waterways.
- Ensure proper usage and safe application of pesticides around aquatic resources, including the use of pesticide formulations labeled for aquatic application and treatment buffers around aquatic habitats.

PG&E's Proposed Measure No. 4, *Hazardous Substance Plan* (PG&E 2024, Attachment E2), would:

- Address the storage, transportation, spill prevention, cleanup, and disposal of hazardous substances used by PG&E associated with Proposed Project activities.
- Include a description of spill clean-up equipment that PG&E maintains at each Proposed Project facility where hazardous substances are routinely stored, vehicles routinely used to transport hazardous substances, and on-site when PG&E staff are using hazardous substances in the field.

PG&E's Proposed Measure No. 8, *Transportation System Management Plan* (PG&E 2024, Attachment E2), would address erosion along Proposed Project roads and stream crossings.

Therefore, there would be a less than significant impact.

Temperature

The Proposed Project would have minimal effect on water temperature. Historical water temperature data collected in Courtright Lake and Lake Wishon showed no statistically significant differences in thermocline depth during pre-operational (1972–1983) and operational (1984–1988) periods (PG&E 1990), indicating little to no relationship between Helms Project operations and altered water temperatures. The Proposed Project's intake-discharge structures in both Courtright Lake and Lake Wishon are located where water temperatures are coldest during the summer, and no changes to water temperature were apparent at the depth of the structures during 2023 monitoring (PG&E 2024). Therefore, there would be a less than significant impact.

Dissolved Oxygen

The Proposed Project would have minimal effect on dissolved oxygen concentrations. The Proposed Project does not release constituents that would affect dissolved oxygen. Dissolved oxygen concentrations in Courtright Lake and Lake Wishon were below the Tulare Lake Basin Plan numerical water quality objective (9 mg/L) during August, September, and October 2023; however, dissolved oxygen profiles were consistent with summer stratification patterns in oligotrophic lakes, with lower dissolved oxygen in the warmer surface waters and higher dissolved oxygen in colder bottom waters and concentrations near 100 percent saturation (PG&E 2024). Therefore, there would be a less than significant impact.

Electric Conductivity

The Proposed Project would have no measurable impact on electric conductivity because there are no constituents released that would alter conductivity. Electric conductivity measurements in Courtright Lake and Lake Wishon were low in 2023, and significantly less than the 100 micromhos per centimeter (µmhos/cm) maximum Tulare Lake Basin Plan numerical water quality objective for salinity (PG&E 2024). Therefore, there would be a less than significant impact.

pH

The Proposed Project would have no measurable effect on pH levels. The Proposed Project does not release constituents that would alter pH. During 2023, pH levels in Courtright Lake and Lake Wishon were relatively low and less than the Tulare Lake Basin Plan numerical water quality objective and historically measured pH was neutral (CEDEN 2020, PG&E 1990). The low pH (<6.5 s.u.) concentrations in 2023 are likely due to the low buffering capacity (i.e., low total alkalinity in Courtright Lake and Lake Wishon. Lower pH is a natural occurrence in headwater reaches in granitic watersheds due to the relatively low weathering rates of the predominant geology (i.e., granite) (PG&E 2024, Section E.2.5) and may be due to naturally lower pH found in rainfall and snow melt. The higher pH concentrations in surface waters during August and September 2023 are consistent with photosynthesis and higher levels of phytoplankton productivity in surface waters during the longer daylight hours and warmer water temperatures (PG&E 2024). Therefore, there would be a less than significant impact.

Alkalinity and Hardness

Total alkalinity and hardness measurements collected during 2023 were less than the USEPA national water quality criteria (20 mg/L [4-day average]) for the protection of freshwater aquatic life (USEPA 2023, PG&E 2024). The Proposed Project does not affect alkalinity and hardness. Therefore, there would be a less than significant impact.

Biostimulatory Substances

The Proposed Project would have no measurable impact on biostimulatory substances. The Proposed Project does not release nutrients into Courtright Lake or Lake Wishon. Concentrations of nutrients and chlorophyll-a were low in Courtright Lake and Lake Wishon during 2023 (PG&E 2024). Therefore, there would be a less than significant impact.

Toxicity

The Proposed Project does not release toxic materials. Although there are no data for total or dissolved metals in Project-affected reservoirs, dissolved oxygen measurements at the bottom of the water column do not indicate reducing conditions or anoxia likely to cause mobilization of un-ionized ammonia or trace metals in concentrations approaching toxicity limits. Total ammonia concentrations were below laboratory detection limits in all samples collected from Courtright Lake and Lake Wishon during 2023; therefore, un-ionized ammonia is considered negligible. Additionally, mercury concentrations (<0.07 ppm) in historical fish tissue samples from Courtright Lake (n=2) and Lake Wishon (n=2) were below the OEHHA threshold of concern for public health (Davis et al. 2010, PG&E 2024). Implementation of Proposed Measure No. 4, *Hazardous Substance Plan*, which includes spill prevention and cleanup of hazardous substances, would reduce effects to water quality standards or waste discharge requirements as a result of toxicity levels. Therefore, there would be a less than significant impact.

Oil and Grease

Under routine Proposed Project O&M, the Helms Project does not release oil and grease to surface waters. Oil and grease were detected at concentrations below method reporting limits (<1 mg/L) during 2023 but historically have not been detected in Courtright Lake or Lake Wishon during routine Helms Project operations (FERC 2022). With implementation of Proposed Measure Nos. 3 and 4, the Proposed Project is not expected to result in concentrations of oil and grease creating a visible film or coating on water surfaces. Therefore, there would be a less than significant impact.

Sediment, Settleable Material, and Suspended Material

The Proposed Project does not directly release sediment, settleable material, or suspended sediment. Sources of sediment, settleable material, and suspended sediment resulting from erosion and sedimentation at Helms Project facilities or from routine Proposed Project O&M activities were not identified, as discussed for each related Tulare Lake Basin Plan water quality objective, below.

Sediment

Proposed Project O&M activities are unlikely to contribute sediment to Courtright Lake or Lake Wishon. Although there are frequent water surface fluctuations, the Proposed Project operates within the P-1988's overall seasonal fluctuation ranges. Subsequently, the shorelines of Courtright Lake and Lake Wishon are generally resistant to erosion, limiting sources of sediment. Additionally, no significant source of sediment is associated with paved Helms Project roads. There is a potential source of sediment from erosion along unpaved Helms Project roads; however, most Helms Project roads in the vicinity of Courtright Lake and Lake Wishon are paved.

PG&E proposes two measures to avoid or minimize effects related to erosion and sediment (PG&E 2024, Attachment E2):

- PG&E's Proposed Measure No. 3, *Biological Resources Management Plan*, includes erosion control measures (i.e., AMM-1, AMM-4, AMM-5, AMM-8, WET-1) that would be implemented where necessary to prevent soil disturbance, spoil wash, and erosion to reduce sedimentation in wetland areas and waterways.
- PG&E's Proposed Measure No. 8, *Transportation System Management Plan*, would include routine procedures for the inspection of Proposed Project roads and trails and short-term and long-term procedures for the maintenance and repair of Proposed Project roads and trails.

Implementation of these measures would reduce potential effects of sedimentation from local erosion to minor levels. Therefore, there would be a less than significant impact.

Settleable Material

The Proposed Project would not result in accumulation of sediment or other settleable materials in Proposed Project-affected waters in concentrations that cause nuisance or adversely affect beneficial uses. The Proposed Project does not include dams that trap and accumulate sediments and other settleable materials, and although large-scale sediment deposits occurred at the mouth of Short Hair Creek following the unanticipated failure of the Lost Canyon Pipe crossing in 1982, subsequent monitoring indicated no continued accumulation (PG&E 2024). Therefore, there would be no impact.

Suspended Material

As described above and in the Helms FLA (PG&E 2024), total suspended solid samples were collected in 2023 and found that Lake Wishon exhibited high water clarity (i.e., deep light penetration measured by Secchi disk [5.3–8.5 meters]), and low total suspended solids [<2.8–4 mg/L]) (PG&E 2024, Attachment E3, Study Data Summary WR-1).

The Proposed Project would not contribute to any significant concentrations of suspended materials in Helms Project reservoirs. Therefore, there would be no impact.

Turbidity

As described above and in the Helms FLA (PG&E 2024), turbidity samples were collected in 2023 and found that Lake Wishon exhibited high water clarity and low turbidity. The Proposed Project would have no measurable impact on turbidity levels (PG&E 2024, Attachment E3, Study Data Summary WR-1). Turbidity is low in Courtright Lake (0.3-0.4 NTU) and Lake Wishon (0.2-0.5 NTU) (PG&E 2023). Therefore, there would be no impact.

Bacteria

The Proposed Project would have no measurable impact on bacteria levels. *E. coli* (<1.8 MPN/100mL) was less than Tulare Lake Basin Plan numerical water quality objective during 2023 monitoring (PG&E 2023). Therefore, there would be no impact.

Other

Ammonia

Ammonia concentrations would not be impacted by Proposed Project operations. The Proposed Project does not directly discharge ammonia into Courtright Lake or Lake Wishon or indirectly elevate pH to affect free ammonia concentrations. Therefore, there would be no impact.

Chemical Constituents

The Proposed Project would have no impact on chemical constituents. The Proposed Project does not release chemical constituents into Courtright Lake or Lake Wishon, and PG&E is unaware of any instances in which concentrations of chemical constituents in Courtright Lake and Lake Wishon have adversely affected beneficial uses. Therefore, there would be no impact.

Color

The Proposed Project would have no impact to water color. The Proposed Project does not release constituents that would affect water color. Therefore, there would be no impact.

Floating Material

The Proposed Project would have no impact on floating material. The Proposed Project would not result in floating material in Courtright Lake or Lake Wishon. Therefore, there would be no impact.

Pesticides

Proposed Project O&M activities include the use of pesticides (herbicides as part of vegetation management and rodenticides for rodent control). Pesticide use under the Proposed Project would have a less than significant impact on water quality with implementation of measures outlined in Proposed Measure No. 3, *Biological Resources Management Plan* (i.e., measures AMM-7 and AMM-11), and Proposed Measure No. 4, *Hazardous Substance Plan*. These proposed measures would ensure proper usage and safe application of pesticides around aquatic resources, including the use of pesticide formulations labeled for pesticide application and establishment of treatment buffers around aquatic habitats. Therefore, there would be a less than significant impact.

Radioactivity

The Proposed Project would have no impact on radionuclide concentrations because the Helms Project does not release radionuclides. Therefore, there would be no impact.

Salinity

The Proposed Project would have no impact on salinity. The Proposed Project does not release constituents that affect salinity. Specific conductivity is low in Courtright Lake and Lake Wishon, and no measurements exceeded the Tulare Lake Basin Plan numerical water quality objective (100 µmhos/cm) (CEDEN 2020; PG&E 1990). Therefore, there would be no impact.

Tastes and Odors

The Proposed Project would have no impact on tastes or odors. The Proposed Project does not release substances that would affect the taste or odor of water. Therefore, there would be no impact.

Conclusion

Implementation of Proposed Measure Nos. 1, 3, 4, 7, and 8, would reduce potential effects to water quality standards or waste discharge requirements. Therefore, there would be a less than significant impact.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? (No Impact)

The Proposed Project would not alter groundwater supplies or interfere substantially with ground water recharge. The Proposed Project does not alter the capacity of runoff, nor does it include structures or alterations to topography that would impede or redirect flood flows and would not substantially decrease or interfere substantially with groundwater supplies or recharge. Sustainable groundwater management of the basin would not be impeded. Therefore, there would be no impact.

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 or through the addition of impervious surfaces, in a manner which would:

i. result in substantial erosion or siltation on- or off-site? (Less Than Significant Impact)

The Proposed Project does not directly release sediment, settleable material, or suspended sediment, and PG&E is unaware of any instances in which sediment, settleable material, or suspended material in Courtright Lake and Lake Wishon was a nuisance or adversely affected beneficial uses. The Lost Canyon Pipe rupture during pre-operational testing in 1982 is not typical of normal O&M. Beneficial uses were adversely affected during the failure in Lost Canyon Creek and Short Hair Creek; however, mitigation monitoring indicated that there were no long-term effects on water quality and fisheries and beneficial uses would not be adversely affected during implementation of the Proposed Project. Sources of sediment, settleable material, and suspended sediment resulting from erosion and sedimentation at Helms Project facilities or from routine Proposed Project O&M activities were not identified (PG&E 2024). In the event of pipe failure, the potential for substantial erosion and sedimentation is significant. However, with the implementation of routine O&M patrols, inspections, and maintenance, such an event is unlikely to occur.

Because the Proposed Project does not include the construction or modification of dams or changes to existing flow release operations, and most Helms Project roads in the vicinity of Courtright Lake and Lake Wishon are paved, the potential for erosion is primarily associated with operations at the two Helms Project reservoirs. As water is moved back and forth between the two lakes, the water surface elevations fluctuate and expose littoral areas of the reservoirs, providing access to tributary streams used by migrating fish for spawning. Water surface fluctuations have the potential to increase erosion along shorelines. Although there are frequent water surface fluctuations, the Proposed Project operates within the P-1988's overall seasonal fluctuation ranges. Additionally, bedrock outcrops are prevalent along the shorelines of Courtright Lake and Lake Wishon, and the shorelines are barren and rocky with only small patches of soil scattered on the bedrock slopes. Subsequently, the shorelines of Courtright Lake and Lake Wishon are generally resistant to erosion, limiting sources of sediment (PG&E 2024, PG&E 2021).

PG&E proposes two measures to avoid or minimize effects related to erosion and sediment (PG&E 2024). PG&E would follow avoidance and minimization measures outlined in Proposed Measure No. 3 and implement BMPs outlined in Proposed Measure No. 8 to control sedimentation and to minimize the quantity of inorganic sediments entering Proposed Project-affected waters resulting from Proposed Project O&M. Implementation of these measures would reduce potential adverse effects of sedimentation from local erosion to minor levels (PG&E 2024). Therefore, there would be a less than significant impact.

ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? (No Impact)

The Proposed Project does not include the addition of impermeable surfaces that would reduce infiltration and result in a substantial increase in the rate or amount of surface runoff. Therefore, there would be no impact.

iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? (No Impact)

The Proposed Project does not include conditions that would create or contribute runoff water such that the capacity of planned stormwater drainage systems would be exceeded. Additionally, the Proposed Project would not provide substantial additional sources of polluted runoff. Therefore, there would be no impact.

iv. impede or redirect flood flows? (No Impact)

The Proposed Project does not include structures or alterations to topography that would impede or redirect flood flows. Therefore, there would be no impact.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? (Less Than Significant Impact)

In the event of flooding caused by rainfall, snowmelt, tsunami, or seiche waves triggered by landslides, rockfalls, or seismic events, there is a potential for pollutants to be transported into waterbodies if inundation were to occur in areas where vehicles, equipment, fuel, herbicides, pesticides, or other potential pollutants are stored. Isolated rockfalls have occurred throughout the Proposed Project area and have the potential to affect Helms Project facilities. Some rockfalls may be related to ground shaking from distant earthquakes or periods of heavy precipitation, but most appear to be from areas affected by erosional processes such as exfoliation and ice wedging (PG&E 2024, PG&E 2021). However, implementation of measures contained in Proposed Measure No. 3, *Biological Resources Management Plan;* Proposed Measure No. 4, *Hazardous Substance Plan*, and Proposed Measure No. 8, *Transportation System Management Plan* would minimize and avoid effects of pollutants, such as sediment or hazardous material runoff from the use of vehicles or equipment (PG&E 2024). Therefore, there would be a less than significant impact.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? (Less Than Significant Impact)

The Proposed Project would be required to comply with all existing requirements regarding water quality. In addition, as noted in Impact b), above, the Proposed Project would result in less than significant impacts related to groundwater recharge. Therefore, there would be a less than significant impact.

3.12 Land Use and Planning

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

3.12.1 ENVIRONMENTAL SETTING

The Proposed Project is primarily located within the SNF, which covers approximately 1.3 million ac within eastern portions of Mariposa, Madera, and Fresno counties, California. The SNF includes about 102,000 ac of private, state, county, and other land ownerships embedded within its boundaries. Other federal lands in the region are managed by the BOR, BLM, National Park Service (NPS), and USACE. The private land that overlaps the parcels where facility modifications will occur is zoned R-C (Resource and Conservation) (DOC 2022). The R-C zone is intended to conserve and protect natural resources and natural habitats involving land and water areas that are essentially undeveloped, with no more than one primary dwelling unit per parcel. The R-C zone is consistent with the Open Space and Public Lands and Open Space land use designations of the General Plan (Fresno County 2024). The Fresno County Zoning Ordinance stipulates that R-C zoned lands shall conform to the same general plan land use designations as Zone “O” (Open Conservation Land Use), which in the plan is designated as Open Space, Public Lands and Open Space.

In the Courtright Lake area, hydroelectric and recreation facilities are on USFS lands, with most hydroelectric facilities underground (access is via Lost Canyon Road). There are four recreation sites with internal roads. In the Lake Wishon area, facilities include hydroelectric, transmission lines, support facilities, a wildlife habitat management area, and recreation sites. Most hydroelectric facilities are on USFS lands, except for the Wishon Intake Discharge Structure and Helms Switchyard. Access roads include Switchyard Road, Helms Powerhouse Road, and Helms Support Facility Access Road. There are nine recreation sites, mostly on USFS lands, with access roads at six sites. The Helms-Gregg 230 kV Transmission Lines are west of Lake Wishon. The areas are within SNF Wildlife Habitat, Kings Conservation Watersheds, and recreation management areas. With respect to county land designations, the county designates private lands within its boundaries to be used in ways that are consistent with the resources found in the area. Land use within the proposed FERC Project Boundary is primarily hydropower generation and recreation, which would be managed in accordance with agency land use management plans and the new Proposed Project license conditions.

The BOR manages 28.5 acres along the Helms-Gregg 230 kV Transmission Lines within the proposed FERC Project Boundary near Madera, California. This area is part of BOR’s California-Great Basin Region. BOR allows public use of their lands with proper authorization if it aligns with their federally

authorized purposes and does not interfere with BOR operations. Authorized land uses include special events, utility crossings, communication lines, livestock grazing, commercial filming, and more.

The BLM manages a small 2.22-acre parcel along the Helms-Gregg 230 kV Transmission Lines within the proposed FERC Project Boundary, between the SNF and Madera, California. This land is managed under the Bakersfield Field Office Resource Management Plan, which provides broad land use direction. The Kings River Special Management Area (SMA) is located about one mile south of the Proposed Project in the SNF. The Nationwide Rivers Inventory (NRI) lists over 3,200 river segments with significant natural or cultural values, but none are in the Proposed Project vicinity. National Wild and Scenic rivers, wilderness areas, and scenic trails near the Proposed Project are discussed in FLA Exhibit E.6 (PG&E 2024).

The SNF LMP sets two levels of management direction: one is forest-wide, and the other is area specific (which include management areas and designated areas). SNF specific-areas within the proposed FERC Project Boundary include the Wildlife Habitat; Conservation Watershed; Sustainable General Recreation, Sustainable Destination Recreation and the Eligible, Suitable, or Recommended Wild and Scenic area-specific Management Areas (Forest Service 2023b). The proposed FERC Project Boundary does not overlap with any existing SNF area specific designated areas, including existing Wilderness and Wild and Scenic Rivers. In addition, the LMP does not provide area-specific direction for hydroelectric projects.

3.12.2 IMPACT ANALYSIS

a) Would the project physically divide an established community? (No Impact)

The existing Helms Project is located in a rural area that is sparsely populated. The Proposed Project does not include any new facilities or new land uses that would physically divide an established community and therefore, no impacts are anticipated.

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? (Less Than Significant Impact)

The only proposed modification that could affect land use would be the change in the FERC Project Boundary. Under the existing license, the total area within the FERC Project Boundary is 4,837.30 acres, with 3,375.03 acres of federal land and 1,462.27 acres of other land. The Helms and P-1988 overlap accounts for 344.69 acres, while the Helms-only area is 4,492.61 acres. Specifically, the overlap includes 344.69 acres managed by the BOR. In the proposed new license, the total area within the FERC Project Boundary decreases by 528.08 acres (10.9%), resulting in a new total of 4,309.22 acres. The reduction includes a decrease of 456.61 acres of federal land and 71.47 acres of other land. The Helms Project and P-1988 overlap decreases by 479.00 acres (11.1%), and the Helms-only area decreases by 49.08 acres (1.0%). Specifically, the overlap reduction includes 455.17 acres managed by the BOR.

The modifications are intended to incorporate existing access roads and facilities, including recreational facilities, thereby rectifying the existing FERC Project Boundary by incorporating lands predominantly utilized for Proposed Project O&M and excising lands not requisite for these purposes. The proposed FERC Project Boundary increases would accommodate the inclusion of existing access roads and facilities, including existing recreational facilities. The changes would include adding lands currently used predominantly for Proposed Project O&M, which corrects the existing FERC Project Boundary. Additionally, lands that do not enclose Helms Project facilities

and are not necessary for O&M will be removed, also correcting the FERC Project Boundary. The FERC Project Boundary around Courtright Lake and Lake Wishon will be changed from surveyed coordinates to a system based on the Normal Maximum Water Surface Elevation (NMWSE), aligning with FERC's preferred method and providing a better representation of lands required for O&M. Given the small scale of these proposed changes and that no new construction is proposed there is minimal conflict with existing land use policies which were adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, impacts are less than significant.

3.13 Mineral Resources

Would the project:	Potentially Significant Impact	Less than Significant 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?				X
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?				X

3.13.1 ENVIRONMENTAL SETTING

Fresno County has been a leading producer of minerals because of the abundance and wide variety of mineral resources that are present in the County. Extracted resources include aggregate products (sand and gravel), fossil fuels (oil and coal), metals (chromite, copper, gold, mercury, and tungsten), and other minerals used in construction or industrial applications (asbestos, high-grade clay, diatomite, granite, gypsum, and limestone) (Fresno County 2024).

3.13.2 IMPACT ANALYSIS

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (No Impact)

The Proposed Project area has no known mineral resources of potential value and is not within a mapped Mineral Resource Zone, as defined by the Surface Mining and Reclamation Act (DOC 2016). The Proposed Project does not involve any new construction or expansion that would result in loss of availability of a known mineral resource. Therefore, the Proposed Project would have no impact on the availability of mineral resources.

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 Proposed Project is not located within a locally important mineral resource zone, as defined by the Fresno County General Plan (Fresno County 2024). Additionally, as discussed under "a" above, the Proposed Project does not involve any new construction or expansion that would result in loss of mineral resources in the area. Therefore, the Proposed Project would have no

impact on the availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan and no mitigation is required.

3.14 Noise

Would the project result in:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the Project area to excessive noise levels?				X

3.14.1 ENVIRONMENTAL SETTING

Noise is commonly defined as unwanted sound in the environment. This definition reflects a subjective reaction to the characteristics of the physical phenomenon of noise. People judge the relative magnitude of sound sensation in subjective terms, such as “noisiness” or “loudness.” Although elevated noise levels can result in physiological damage and hearing loss, excessive noise in the environment more commonly impairs general human well-being by contributing to psychological stress and irritation. Such health effects can result when noise interferes with everyday human activities, such as sleep, talking, recreation, relaxation, and tasks requiring concentration. When noise is either disturbing or annoying, whether by its pitch or loudness, it may be considered objectionable.

The overall noise level associated with a given noise environment is called the “ambient” noise level. Ambient noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks, trains, and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. Other contributing noise sources, often referred to as “background” sources, Californian include the sound of birds, people talking, occasional vehicles passing by, or televisions and radios.

Although the Proposed Project is not subject to local noise requirements, PG&E does work to comply with local requirements. The Fresno County General Plan includes goals and policies for land use compatibility and noise exposure. Figure 3-1 below shows the normally acceptable, conditionally acceptable, generally acceptable, and land use discouraged levels for each land use category.

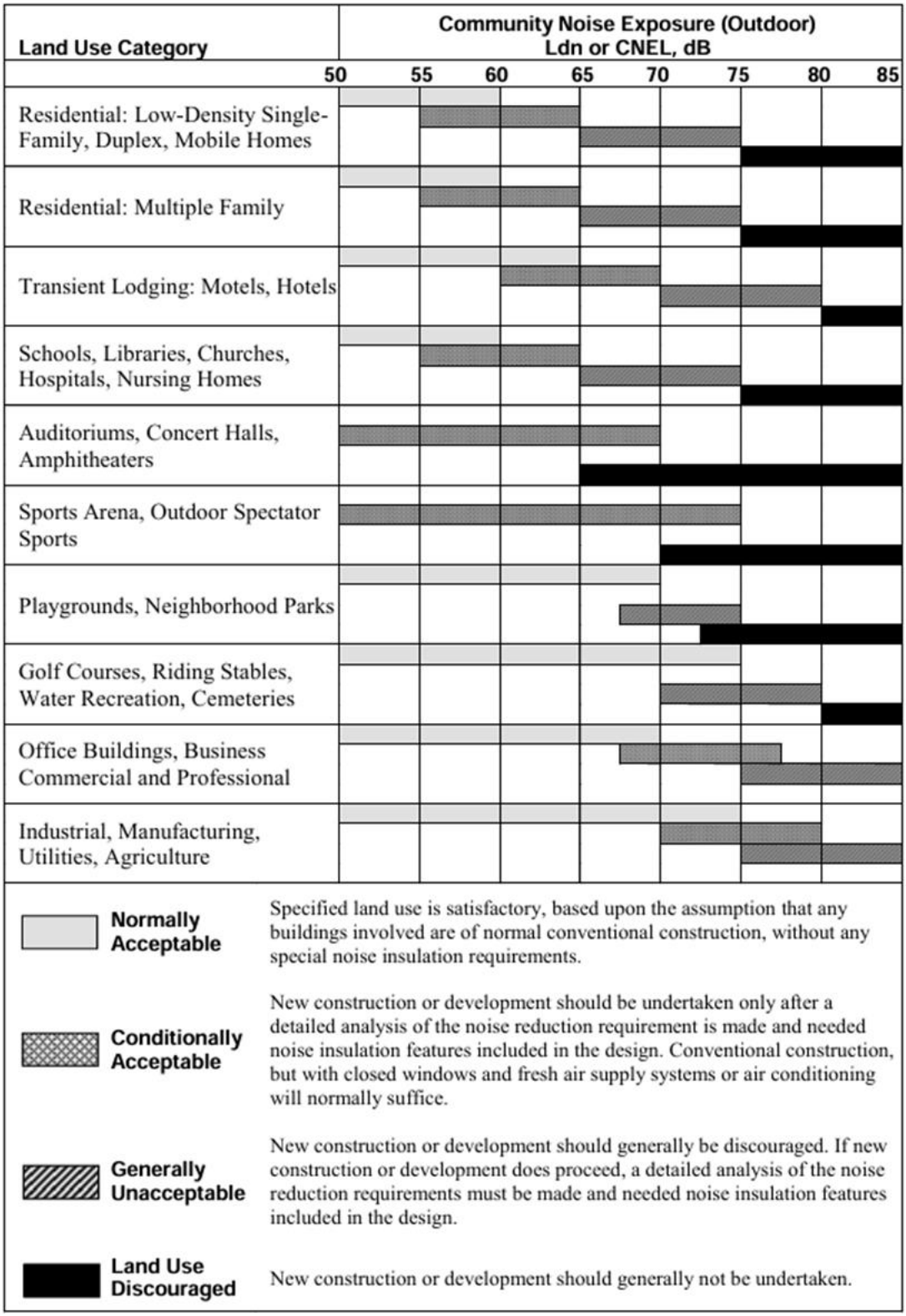

Figure 3-1. Land Use Compatibility for Community Noise Environments

Sensitive receptors in the Proposed Project area largely include recreational users and PG&E employees accessing the area. Recreational areas are considered sensitive to changes in the noise environment, due to the existing ambient noise levels in the area which are typical of campgrounds, trails, and other similar recreational uses.

There is one small airport, Sierra Sky Park Airport, located within two miles of the western most portion of the Proposed Project area.

3.14.2 IMPACT ANALYSIS

a) Would the project result in exposure of persons to or generation of temporary or permanent noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Less Than Significant Impact)

The Proposed Project does not include any new facilities that would generate substantial temporary or permanent increases in noise levels above the existing conditions. Construction activities associated with the recreational improvements would temporarily increase noise levels in the Proposed Project area. Noise resulting from construction activities would depend on the different types of equipment used, the distance between construction noise sources and sensitive noise receptors, and the timing and duration of noise-generating activities. Specifically for recreational areas, where noise sensitivity is higher and fixed, PG&E plans to undertake construction activities during periods outside of the facilities' peak recreation season, when possible, to limit impacts to recreational users. Further, recreational area improvements will be phased over several years and across recreational sites, thus limiting noise impacts to recreational users. Also, PG&E uses equipment with noise-reduction components. Although the Proposed Project would result in a temporary increase in noise in various areas through the area, these increases would be similar to existing operations and maintenance activities that currently occur in the area. Therefore, impacts would be less than significant.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? (Less Than Significant Impact)

The Proposed Project does not include any new facilities or construction activities that would generate substantial temporary or permanent increases in groundborne noise or vibration levels. Construction activities may involve the use of equipment that could result in vibrations in the area, however no substantial new vibrations are anticipated for the recreation improvements. Vibrations from construction would be similar to work completed for existing operations and maintenance activities. Therefore, impacts would be less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (No Impact)

Although the Sierra Sky Park Airport is within 2 miles of the Proposed Project, the Proposed Project does not include construction of any new buildings or structures designed for human habitation. No recreational improvements would occur near the airport. Therefore, there is no impact.

3.15 Population and Housing

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere				X

3.15.1 ENVIRONMENTAL SETTING

The land encompassing the Proposed Project is rural in nature and sparsely populated. Small unincorporated communities are present in the Shaver Lake vicinity to the west, and Proposed Project boundaries cross private parcels near the Wishon Village RV Park, although they are zoned as RC (Resource Conservation) by the County of Fresno. Individual homes are scattered throughout the vicinity, particularly in the lower foothills.

3.15.2 IMPACT ANALYSIS

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? (No Impact)

The Proposed Project does not include any measures or plans that specifically address population and housing impacts. The Helms Project does not propose the construction of new residential or commercial structures, nor does it entail the extension of roads or other infrastructure that could facilitate unplanned population growth. There are no new facilities or modifications to existing facilities as part of the Proposed Project that would result in indirect or direct population growth. The Proposed Project would generate temporary jobs during the work period, but these positions are expected to be filled by workers regionally, resulting in no permanent impact on population growth. No new homes or businesses would be developed and there are no extensions of roads or other infrastructure that could induce population growth. No impacts are anticipated.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? (No Impact)

The Proposed Project does not involve any activities that would result in the displacement of existing residents or housing units. There are no proposed new facilities or modifications to existing facilities that would result in the displacement of residences or businesses or result in the need for replacement housing. No impacts are anticipated.

3.16 Public Services

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:			X	
i. Fire protection?			X	
ii. Police protection?				X
iii. Schools?				X
iv. Parks?				X
v. Other public facilities				X

3.16.1 ENVIRONMENTAL SETTING

The Fresno County Fire Protection District (FCFPD) provides fire protection and emergency response services. The district is divided into several battalions, each covering different areas within the county. The Proposed Project falls under the jurisdiction of the California Department of Forestry and Fire Protection (CAL FIRE) Fresno-Kings Unit. This unit is responsible for fire protection and emergency response services in Fresno and Kings Counties (CALFIRE 2025).

Fresno County's law enforcement is primarily handled by the Fresno County Sheriff's Office, which provides policing services to unincorporated areas and supports local police departments within incorporated cities. The Sheriff's Office is organized into various divisions and units to cover different aspects of law enforcement, including patrol, investigations, and special operations. The Proposed Project falls into coverage Area 4 that provides unique services to this area that include units such as: Search and Rescue, Boating/Dive, and the Off-Highway Vehicle (snowmobiles/ATV/dirt bikes). Area 4's northeastern substation is located in Auberry on Auberry Road. Area 4's southeastern substation is located in Squaw Valley on Hwy 180 (Fresno County Sheriff's Office 2024).

The Wishon Reservoir area is located in the Sierra Unified School District, and the Courtright Reservoir is located within the Pine Ridge Elementary School District. There are no schools within the vicinity of the Proposed Project.

3.16.2 IMPACT ANALYSIS

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 government facilities, the construction of which could cause significant

environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?

i. Fire protection? (Less Than Significant Impact)

The Proposed Project does not include any activity that would increase the population which could affect service ratios, response times, or other performance objectives and the activities do not require the need for additional, or altered existing, public services such as fire protection beyond what is currently provided. While the Proposed Project does not include activities that would permanently increase the population or require additional public services, construction and maintenance activities have a small potential to create an ignition. However, these activities will be conducted in compliance with all relevant fire protection regulations and guidelines to minimize this risk. Therefore, impacts are anticipated to be less than significant.

ii. Police protection? (No Impact)

The Proposed Project does not include any activity that would increase the population which could affect service ratios, response times, or other performance objectives. None of the Proposed Project activities would require the need for additional or altered existing police protection beyond what is currently provided. Therefore, no impacts are anticipated.

iii. Schools? (No Impact)

The Proposed Project does not include any activity that would increase the population which could affect service ratios, response times, or other performance objectives. None of the Proposed Project activities would require the need for additional, or altered existing, public services such as schools beyond what is currently provided and therefore, no impacts are anticipated.

iv. Parks (No Impact)

The Proposed Project does not include any activity that would increase the population which could affect public service ratios, response times, or other performance objectives related to provision of parks. None of the Proposed Project activities would require the need for additional parks beyond what is currently provided. Therefore, no impacts are anticipated.

v. Other public facilities? (No Impact)

The Proposed Project does not include any activity that would increase the population which could affect other public facilities. Therefore, no impacts are anticipated.

3.17 Recreation

Would the project:	Potentially Significant Impact	Less than Significant 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?			X	
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.			X	

3.17.1 ENVIRONMENTAL SETTING

Existing Helms Project facilities, including campgrounds, parking areas, picnic sites, and boat launch sites, are generally sufficient to meet present and future recreation demands. For example, occupancy levels at these sites are typically low, providing adequate capacity for increased use over the new license period. However, the Lake Wishon Spillway Fishing Access parking area is projected to exceed capacity on weekends by the end of the license period. The *Recreation Management Plan* includes measures to provide additional parking to meet demand at this site. Proposed Project recreation facilities will require rehabilitation over the term of the new license to maintain functionality and meet accessibility standards. The *Recreation Management Plan* outlines a schedule for these improvements, ensuring enhancements are made concurrently for each site. The *Recreation Management Plan* includes a monitoring program to assess occupancy levels and trigger additional actions when needed. Proposed Project recreation roads, campground spurs, and parking areas will be maintained according to long-term standards.

The new license for the Proposed Project would likely require several changes to recreation sites and facilities. Because the exact future recreation facility improvements (timing, location, level of effort, etc.) would be defined through future planning, those projects will need to be analyzed separately and not as part of this scope of analysis. The Proposed Project does include routine maintenance work to maintain the original function and capacity of existing facilities, as well as work that involves minor or no ground disturbance, which are covered by PG&E's proposed *Biological Resources Management Plan*.

3.17.2 IMPACT ANALYSIS

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (Less Than Significant Impact)

The Helms Project's proposed FERC Project Boundary re-delineation and the proposed construction and maintenance activities at recreation facilities are not near any neighborhood or regional parks, and the construction activities are limited to improving existing recreational facilities. Construction of recreation sites will have short-term, minor adverse effects on recreation

resources. PG&E plans to minimize impacts by scheduling construction outside of the peak recreation season and keeping parts of the sites open during construction. Notices of planned work will be posted to inform recreationists (PG&E 2024a).

Temporary site closures during recreation facility improvements could temporarily displace visitors to nearby recreation sites. Therefore, the Proposed Project is not expected to permanently increase the use of existing neighborhood and regional parks or other recreational facilities to the extent that substantial physical deterioration would occur or be accelerated. Impacts are thus expected to be less than significant.

b) Does the project include recreational facilities or require the construction of or expansion of recreational facilities which might have an adverse physical effect on the environment? (Less Than Significant Impact)

The Proposed Project includes plans for the improvement and reconstruction of existing recreational facilities. These improvements include accessibility enhancements, replacement of food lockers, and road and parking area resurfacing at various campgrounds and day-use sites. Additionally, PG&E proposes to formalize parking at the Courtright Reservoir Spillway Fishing Access and move picnic sites to more accessible areas. While these activities involve construction, they are primarily aimed at maintaining and enhancing existing facilities rather than significant expansion. These improvements will be completed consistent with local, state, and federal environmental regulations. Further, site and construction plans for future undefined work associated with the Proposed Project will likely require discretionary approvals and environmental analysis prior to any construction activities. The operation, maintenance, and construction of these recreation sites would have less than significant effects on the environment.

3.18 Transportation/Circulation

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?			X	
b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?			X	
c) Substantially increase hazards to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
d) Result in inadequate emergency access			X	

3.18.1 ENVIRONMENTAL SETTING

Regional access to the Proposed Project area is provided through State Highway 168 and State Highway 41 which connect to smaller one lane roadways (arterial and collector roadways) around the Proposed Project area. The majority of roadways directly within the Proposed Project area are used by PG&E employees to access facilities for operations and maintenance activities and by recreational users accessing recreational areas (e.g., campgrounds, trails, etc.). The Fresno County General Plan addresses the circulation system within the County, including specifications for level of service for roadways within the County. Specifically, the Fresno County General Plan Policy TRA -A.25 includes a vehicle miles travelled (VMT) threshold of 110 truck trips per day (Fresno County 2024).

3.18.2 IMPACT ANALYSIS

a) Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities? (Less Than Significant Impact)

Although the Proposed Project does not include any new facilities or new land uses that could conflict with the Fresno County General Plan goals and policies related to transportation, under the new license, 36.45 miles of vehicular roads and 1.08 mile of trails that are used almost exclusively to access the Project area, will be added to the Helms Project. The existing license does not include a clear list of such roads and trails, and some roads within the FERC Project Boundary in the existing license are not Helms Project roads (e.g., are joint use roads that are owned, operated, and maintained by a third party). Therefore, issuance of the new license includes implementation of a *Transportation System Management* Plan (PG&E Proposed Measure No. 8) which will address the maintenance of roads within the Proposed Project area. The *Transportation System Management* Plan will include:

- Locations and types of drainage structures and stream crossings

- The current condition of each Helms Project road and trail and associated structures, including if any observable ongoing environmental adverse effects
- PG&E's routine procedures for the inspection of Helms Project roads and trails
- PG&E's routine short-term and long-term procedures for the maintenance and repair of Helms Project roads and trails
- Procedures for the periodic revision of the Transportation System Management Plan, as needed

Therefore, the Proposed Project will have a less than significant impact.

b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)? (Less Than Significant Impact)

A project that would reduce or have no impact on VMT should be presumed to have a less than significant impact (pursuant to Section 15064.3[b] of the CEQA Guidelines). The Proposed Project does not include uses that would increase the number vehicle trips or driving distance in the area. Vehicle trips associated with the recreation improvements would be incorporated into the existing maintenance schedule. Vehicle trips would be minimal and would not exceed the Fresno County General Plan threshold of 110 truck trips per day (Policy TR-A.25). Any additional work trips associated with the recreation improvements would occur in conjunction with existing operations and maintenance activities and therefore would be consistent with the CEQA Guidelines Section 15064.3(b) as well as the Fresno County General Plan. The impact would be less than significant.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (No Impact)

The Proposed Project does not include any new facilities or land uses that would substantially increase hazards due to a geometric design feature or incompatible uses. Construction activities associated with the recreational improvements would occur within existing developed areas and would not result in changes that would increase hazardous conditions or incompatible uses beyond what currently exists. Since the Proposed Project does not include any new facilities or land uses that would substantially increase hazards due to a geometric design feature or incompatible use, no impact would occur.

d) Would the project result in inadequate emergency access? (Less Than Significant Impact)

The Proposed Project does not involve any new construction of buildings or roads that would result in interference with emergency access for the area. Improvements to recreational facilities would occur within the existing areas within the FERC Project Boundary and would not result in substantial changes to roads or traffic congestion that could impede emergency access or recreational users entering and exiting the area. Therefore, the Proposed Project would not result in inadequate emergency access. The impact would be less than significant.

3.19 Tribal Cultural Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:			X	
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or			X	
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision I of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision(c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.			X	

3.19.1 ENVIRONMENTAL SETTING

PRC Section 21080.3.1 requires that agencies formally consult with recognized California Native American tribes during the CEQA process to discuss potential impacts on tribal cultural resources. Prior to the release of a Negative Declaration, Mitigated Negative Declaration, or EIR, the agency must initiate consultation with tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if (1) the tribe requested of the agency, in writing, to be informed through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe; and (2) the tribe responds, in writing, within 30 days of receipt of the formal notification of a proposed project and requests consultation with the agency (PRC Section 21080.3.1[b]).

3.19.1.1 Helms Pumped Storage Project, FERC Project No. 2735 Tribal Resources Study

As part of relicensing efforts, Tiley Research, under direction from PG&E conducted the Helms Pumped Storage Project, FERC Project No. 2735 Tribal Resources Study Report in February 2024. Sixty-two (62) Tribal resources were identified, with 23 of these resources identified within the FERC Project Boundary; however, eligibility for the CRHR cannot be determined with the currently available information and

therefore these resources are treated as eligible stand-alone resources, or as possible contributing features to a wider landscape or district.

3.19.1.2 Native American Heritage Commission

The Native American Heritage Commission (NAHC) is a state agency that maintains the Sacred Lands File (SLF), an official list of sites that have cultural and religious importance to California Native American Tribes. The State Water Board submitted a request to the NAHC to review its SLF for the Proposed Project area. The State Water Board received a response on September 20, 2024, from the NAHC, stating that the results were negative.

3.19.1.3 Consultation Outreach per Public Resources Code Section 21080.3.1

On October 23, 2024, invitation to consult letters pursuant to PRC Section 21080.3.1 were sent via email to the representative from the Santa Rosa Rancheria Tachi Yokut Tribe. Included in the letters were details about the Proposed Project and a location map. As of November 23, 2024, no responses have been received and the State Water Board has determined that the consultation process is concluded, pursuant to PRC Section 21080.3.1 (i.e., AB 52) and PRC Section 21084.3.

3.19.2 IMPACT ANALYSIS

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe (Less Than Significant Impact).

No tribal representatives provided additional information about tribal cultural resources that may be affected by the Proposed Project as a result of the State Water Board's invitation to consult pursuant to PRC Section 21080.3. However, 23 tribal resources were identified within the FERC Project Boundary as a result of the Tribal Resources Study conducted for the Proposed Project. As discussed in *Section 3.6 Cultural Resources*, results of the archaeological records search and previous field investigations indicate that known archaeological sites that may qualify as tribal cultural resources are located within the FERC Project Boundary and the Proposed Project could result in a substantial adverse change in the significance of a tribal cultural resource. Thus, potentially significant impacts related to tribal cultural resources could result from the Proposed Project.

However, pursuant to *Section 5.4 Specific Measures for Traditional Cultural Properties* of the Helms Project HPMP, PG&E will continue to find avenues to gain this information so that appropriate management measures could be implemented. Opportunities to solicit this information may arise from day-to-day coordination, annual stakeholder meetings, or Proposed Project-specific consultations. Should management measures for Tribal resources be identified over the course of the Proposed Project FERC license, PG&E will make a good faith effort to implement those measures, in consultation with Tribes, land management agencies, and SHPO, as appropriate.

Should Native American human remains be encountered, as discussed in *3.6 Cultural Resources,* these remains would be required to be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the PRC, as appropriate, and *Section 4.3.8 Treatment of Human Remains* in the Helms Project HPMP (PGE&E 2024).

Compliance with the California Health and Safety Code, Section 5097.98 of the PRC, and the Helms Project HPMP would ensure that impacts to tribal cultural resources would be less than significant, no additional mitigation measures would be required.

3.20 Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				X
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				X
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				X

3.20.1 ENVIRONMENTAL SETTING

Domestic water service within Fresno County is generally operated and managed by special districts such as Community Services Districts (CSDs) (Big Creek; Biola; Bluffs; Caruthers; Del Rey; Easton; Lanare; Laton; and Sierra Cedars)(Fresno 2007),sanitary and sewer maintenance districts, and County Service Areas (County of Fresno n.d.-a).Many of these districts, excluding County Service Areas, are not subject to County control and instead are self-governing. In Madera County, domestic water service is provided through a mix of entities, such as Chowchilla Water District, Hillview Water Company, Madera Valley Water Company, Root Creek Water District, and Madera Water District. Solid waste collection in the communities near the Proposed Project site is provided by local waste management services licensed through the County of Fresno (County of Fresno n.d.-b).

The nearest landfill to the Proposed Project area is the American Avenue Disposal Site, located at 18950 West American Avenue, in Kerman, California. It is a Class III landfill and will only accept standard municipal waste. The landfill has a total capacity of 21.7 million cubic yards and handles on average 2,200 tons per day. As of January 2022, the landfill had a remaining capacity of 17.97 million cubic yards. It is estimated that the landfill will reach capacity in 2043 (County of Fresno 2022). Fresno County has several comprehensive waste management plans to address various types of waste. The Construction &

Demolition Waste Management Plan (WMP) assists the county in complying with the Integrated Waste Management Act of 1989 (AB 939), which mandates a 65% reduction in waste disposed of in landfills. This plan includes requirements for documenting waste reduction efforts and submitting waste logs and receipts. Additionally, the Construction and Demolition Debris Recycling Program requires permit applicants to submit a Waste Management Plan for approval before permit issuance, demonstrating how at least 65% of all nonhazardous waste, scrap, and debris generated will be diverted from landfills.

Natural gas service in Fresno County is primarily provided by PG&E. PG&E also serves the electric needs of the county, including the Sawmill Flat and Bretz Mill areas.

3.20.2 IMPACT ANALYSIS

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? (No Impact)

The Proposed Project does not involve the relocation or construction of new or expanded water, stormwater drainage, electric power, natural gas, wastewater treatment, or telecommunication facilities. The proposed changes would not affect any utilities and service systems. The only construction and maintenance activities include those for recreational facilities, which would be inspected and maintained by PG&E to ensure these features are in good and clean working order. The implementation of these activities would not impact any existing utilities and service systems. No impact would occur related to relocation or construction of new or expanded services.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years? (Less Than Significant Impact)

The Proposed Project would have sufficient water supplies available to serve its needs and reasonably foreseeable future development during normal, dry, and multiple dry years. Proposed Project construction and O&M activities are likely to be supplied by the Proposed Project reservoirs. The Proposed Project utilizes Courtright Lake and Lake Wishon as its upper and lower reservoirs, respectively. Courtright Lake has a usable storage capacity of 123,184 acre-feet, while Lake Wishon has a usable storage capacity of 128,606 acre-feet. Water use is not anticipated to dramatically increase compared to pre-relicensing conditions (PG&E 2024). Therefore, the impact on water supply availability is less than significant.

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (No Impact)

The Proposed Project would not alter any wastewater treatment systems. The Helms Project area relies on individual or community septic systems rather than centralized wastewater treatment facilities. As such, the Proposed Project does not place additional demand on any wastewater treatment provider and there is no impact.

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? (Less Than Significant Impact)

The Proposed Project would generate solid waste consistent with state and local standards and the capacity of local infrastructure. During construction activities, a temporary increase in the generation of solid waste will occur from construction debris. Per the existing FERC license conditions, PG&E will consult and cooperate with the California Department of Public Health to comply with state and local regulations. This includes planning and providing for the collection, storage, and disposal of solid wastes generated through public access and use of Proposed Project lands and waters. Within one year after the commencement of the Proposed Project's operation, PG&E will file a solid waste management plan with FERC, which must be approved by the California Department of Public Health. This plan will detail the location of solid waste receptacles in public areas such as campgrounds, picnicking areas, and boat access areas; schedules for the collection of waste from these receptacles; provisions for including any newly developed public use areas in the plan; and disposal sites and methods of disposal (PG&E 2024a). These measures are compliant with County and state waste management plans and practices. The nearest landfill, the American Avenue Disposal Site, is sufficient to accommodate the Proposed Project's solid waste disposal needs (County of Fresno 2022). Additionally, the Proposed Project would not impair the attainment of solid waste reduction goals, resulting in a less than significant impact.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? (No Impact)

The Proposed Project is expected to generate solid waste within the limits set by state and local standards, as well as the capacity of local infrastructure. According to the existing FERC license conditions, PG&E will consult and cooperate with the California Department of Public Health to ensure compliance with state and local regulations. This involves planning and providing for the collection, storage, and disposal of solid waste generated by public access and use of Proposed Project lands and waters. Within one year of the Proposed Project's commencement, PG&E will submit a solid waste management plan to FERC, which must be approved by the California Department of Public Health. This plan will outline the locations of solid waste receptacles in public areas such as campgrounds, picnic areas, and boat access points; schedules for waste collection from these receptacles; provisions for incorporating any newly developed public use areas into the plan; and the sites and methods for waste disposal. These measures will comply with both county and state waste management plans and practices and no impacts are anticipated.

3.21 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Proposed Project:

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			X	
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				X
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			X	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			X	

3.21.1 ENVIRONMENTAL SETTING

The Proposed Project area is located within a Federal Responsibility Area (FRA), State Responsibility Area (SRA), and Local Responsibility Area (LRA). The USFS is the federal responsible agency within the boundary of the National Forest, CAL FIRE is the state responsible agency for areas within the SRA, and local fire districts are responsible for areas within the LRA.

Federal, state, and local responsible agencies are required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones are referred to as Fire Hazard Severity Zones. The responsible agencies develop the maps using science-based and field-tested models that assign a hazard score based on the factors that influence fire likelihood and fire behavior. Many factors are considered such as fire history, existing and potential fuel (e.g., natural vegetation), predicted flame length, blowing embers, terrain, and typical fire weather for the area. There are three levels of hazard: Moderate, High, and Very High. A few local Very High hazard areas occur in the Proposed Project area, and the mid-elevation portion of the Helms-Gregg 230 kV Transmission Lines is in High to Moderate hazard areas (see PG&E Modified Measure No. 7, *Fire Management and Response Plan*) (CALFIRE 2025).

3.21.2 IMPACT ANALYSIS

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? (Less Than Significant Impact)

The Fresno County General Plan and Fresno County Multi-Jurisdictional Hazard Mitigation Plan include multiple goals and policies related to emergency response and evacuation (Fresno County 2024, Fresno County 2018).

The Proposed Project does not involve any new construction of buildings, roads, or other infrastructure that would result in interference with emergency response plans or emergency evacuation plans for the area. Improvements to recreational facilities would occur within the existing areas within the FERC Project Boundary and would not result in substantial changes that could impede emergency response and/or evacuation within the area. Therefore, the Proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The impact would be less than significant.

b) Would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? (No Impact)

A project would be considered to have a significant impact if, due to existing natural factors, it increased the severity of existing fire risk in a manner that could expose project occupants to wildfires or place project occupants in areas where wildfire smoke is known to concentrate. A project that would increase the severity of existing fire risk due to natural factors could include, for example, a housing development project placed on a slope with prevailing uphill winds in a fire-prone area. Such placement could increase the amount of fuels that could feed a wildfire, which would exacerbate the existing risk of wind-driven wildfires and expose the occupants of the project to that very risk.

The Proposed Project does not include construction of any new buildings intended for human habitation or other features that could result in exacerbation of wildfire risks. Although there would be recreation improvements, these improvements would consist of parking, signage, and access improvements and would not include any features that would increase human habitation in the area. Therefore, there would be no impact.

c) Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? (Less Than Significant Impact)

The Proposed Project does not involve construction or any new roads, emergency water sources, power lines, or other utilities that may exacerbate fire risk. However, issuance of the new license includes implementation of a *Fire Management and Response Plan* (PG&E Proposed Measure No. 7). The *Fire Management and Response Plan* includes requirements for fuel treatments to prevent ignition and escape of potential fires within the Proposed Project area. Fuel treatment activities would be implemented only within areas necessary to reduce fire hazards, protect Proposed Project facilities including Helms Project recreational facilities, and provide for worker and public health and safety. Therefore, the impact would be less than significant.

d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? (Less Than Significant Impact)

A project would be considered significant if it created substantial new risks of post-fire downslope or downstream flooding or landslides or if it resulted in the placement people or structures in areas of existing risk of post-fire downslope or downstream flooding or landslides.

Aside from minor modifications to existing recreational facilities, the Proposed Project does not involve any new construction or expansion that would result in substantial increases in risks as a result of runoff, post-fire slope instability, or drainage changes. The recreational facilities improvements would occur within existing recreational areas and would not result in additional impacts related to risk of post-fire downslope or downstream flooding or landslides. Therefore, the Proposed Project would not have a significant impact regarding the exposure of people or structures to risk of post-fire downslope or downstream flooding or landslides. The impact would be less than significant.

3.22 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively “considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? (Less than Significant Impact)

The Proposed Project involves maintenance and infrastructure improvements to an existing closed-loop hydroelectric facility located in an area of previously developed and routinely managed land. No new diversions, roads, or major ground-disturbing activities are proposed outside of areas already disturbed by utility operations. The Proposed Project may include limited vegetation removal, ground disturbance, and equipment access; although occurring within previously developed areas, these activities have the potential to affect special-status species and sensitive habitats through direct impacts to native vegetation communities, temporary disturbance to wildlife during breeding seasons, and possible degradation of habitat quality in localized areas. Additionally, the Proposed Project could potentially increase suspended sediments and disturb habitat, thus degrading the quality of the environment within the Proposed Project area.

However, these impacts would be avoided or minimized as described in Sections 2, Project Description, and 3, Impact Analysis, and would be limited due to improvements and reconstruction being temporary, and operation and maintenance activities would continue consistent with the existing license. Potential impacts to biological resources would be reduced to less-than-significant levels with implementation of PG&E Proposed Measures. PG&E Proposed Measure No. 3, *Biological Resources Plan* includes specific provisions for avoiding or minimizing impacts to special status species and their habitats, including, but not limited to: seasonal and weather restrictions, pre-screening activities, qualified biological monitoring in occupied habitats, limiting vegetation removal and ground disturbance, flagging exclusion zones around sensitive habitats, pesticide and herbicide application management, and general avoidance and minimization measures. Furthermore, implementation of PG&E Proposed Measure No. 4, *Hazardous Substance Plan* would protect sensitive biological resources from any hazardous substance that could pose a threat to the environment if released, and PG&E Proposed Measure No. 8, *Transportation System Management* would include provisions to prevent sedimentation or erosion from use or maintenance of Proposed Project roads or trails that could degrade habitat for species.

With implementation of PG&E Proposed Measures, the Proposed Project would not be expected to 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 reduce the number or restrict the range of rare or endangered plants or animals. Therefore, there would be a less than significant impact.

With respect to cultural resources, the Proposed Project area has been previously disturbed and subjected to archaeological surveys. No known historical or prehistoric resources occur within the proposed work areas, and the project does not involve excavation or construction in undisturbed locations. Based on the absence of known cultural sites and the limited physical scope of activities, the Proposed Project is not expected to affect important examples of California's

historical or cultural heritage. Therefore, the Proposed Project would not be expected to impact major periods of California history or prehistory.

b) Does the project have impacts that are individually limited, but cumulatively considerable?

According to Section 15355 of the CEQA Guidelines, "cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. These individual effects may result from a single project or from multiple separate projects. The cumulative impact from several projects is defined as the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Such impacts can arise from projects that are individually minor but collectively significant over time. A cumulative impact consists of an impact created by the combination of the project evaluated in this CEQA document together with other projects causing related impacts. The discussion of cumulative impacts should focus on the cumulative effect to which the identified other projects contribute, rather than on the characteristics of projects that do not contribute to the cumulative impact.

The Helms Project consists of continued operation, maintenance, and minor infrastructure upgrades associated with PG&E's closed-loop pumped storage facility located in the upper Kings River watershed. Water is conveyed between Courtright and Wishon reservoirs via a system of underground tunnels and shafts that connect to a subsurface powerhouse equipped with reversible turbine-generators. The project is independent of direct flow releases to the Kings River and does not involve consumptive water use or modifications to riverine hydrology. No expansion of generating capacity or major land disturbance is proposed. Proposed Project activities subject to recent environmental review include minor road and access maintenance and existing recreation site improvements. These activities are confined to previously developed areas.

To assess potential cumulative impacts, the Helms Project was evaluated in the context of other geographically proximate and functionally similar hydroelectric operations. One such project is PG&E's Haas-Kings River Hydroelectric Project, which includes multiple run-of-river diversion structures and powerhouses that convey water through a series of tunnels and penstocks across the Kings River watershed. The Haas and Kings River powerhouses operate without off-stream storage and do not involve consumptive uses. Routine maintenance and vegetation management occur entirely within existing utility corridors and no operational changes or capacity expansions are proposed under current regulatory actions. Another relevant comparison is the PG&E Balch Hydroelectric Project (FERC Project No. 175), which recently underwent environmental review for a FERC license renewal effort. The scope of work for the Balch Project included a re-delineation of the existing FERC project boundary and minor upgrades to recreational facilities within the project footprint. No changes to hydropower operations, infrastructure, or water diversion patterns were proposed.

Further downstream, the Pine Flat Hydroelectric Project (FERC Project No. 2741) provides an additional regional analog. Located immediately below the U.S. Army Corps of Engineers' Pine Flat Dam, the 165-megawatt facility is operated by the Kings River Conservation District and uses only water that is released for flood control and irrigation. The powerhouse does not affect

reservoir levels or modify release schedules. A recent Environmental Assessment prepared under NEPA for the Pine Flat Project evaluated a license amendment to add a fourth turbine unit (Unit 4), which would improve discharge flexibility without altering maximum flows or causing new environmental impacts. The Environmental Assessment concluded that the project would not contribute to cumulatively considerable impacts when viewed in connection with other actions in the basin (FERC 2022).

All three reference projects operate under existing regulatory licenses and are subject to CEQA, NEPA, and/or FERC oversight. Each is confined to established disturbance footprints and subject to site-specific environmental management measures. None involve major land conversion, new water withdrawals, or unmitigated biological or hydrological disturbance. The Helms Project, by virtue of its operational independence from the river system and confined physical footprint, would not generate effects that, when combined with those of these other projects, would result in cumulatively considerable impacts.

The Proposed Project decreased the area within the FERC Project Boundary in addition to improvements and reconstruction of existing facilities and operation and maintenance activities consistent with the existing license. Construction periods would be short and temporary as described in Section 2, Project Description. Implementation of measures to protect the environment are identified in Section 3, Impact Analysis. Proposed Project-related activities are limited in scale and duration, and the implementation of best management practices and applicant-proposed measures, including those related to equipment hygiene and habitat protection, would reduce potential environmental effects to less-than-significant levels. Therefore, the Proposed Project would not lead to cumulative environmental effects when combined with other projects in the area.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? (Less than Significant Impact)

The Proposed Project does not include any new construction outside of existing disturbed areas, nor does it propose changes to power generation, water diversion, or land use that could affect surrounding communities. No housing, public infrastructure, or critical facilities would be developed or modified, and no new permanent workforce or operational activities would be introduced. As discussed in the Initial Study,[7] the Proposed Project would not expose persons to potentially significant impacts related to visual quality, agriculture, air quality, energy, geologic hazards, greenhouse gas emissions, hazards or hazardous materials, hydrology or water quality, land use and planning, noise, population and housing, transportation/traffic hazards, recreation, or affect utilities and services or wildfire. Although the Initial Study identified potentially significant impacts related to biological resources and hydrology and water quality, these effects would not translate into adverse consequences for human populations. The concerns identified for biological resources include potential conflicts with habitat conservation plans, but these would be addressed through compliance with applicable regulatory frameworks and applicant-proposed measures designed to avoid or minimize sensitive habitat disturbance. Additional impacts related to biological resources, hydrology, and water quality involve site-specific runoff, alteration of drainage patterns, and use of hazardous materials such as pesticides and herbicides, but do not

[7] (FERC) Project No. 2735 / Helms Hydroelectric Project | California State Water Resources Control Board

involve water supply, or flood risk to off-site structures. These impacts would be reduced to less-than-significant levels with applicant-proposed measures focused on erosion control, stormwater management, biological resources protection, and hazardous material control. The Proposed Project would not have potentially significant environmental impacts that would cause substantial adverse effects on humans, either directly or indirectly. Therefore, there would be a less than significant impact.

4.0 List of Preparers

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5.0 References

Anderson, B.A. 2007. A literature review of the effects of helicopter disturbance and noise on selected wildlife species. Prepared for U.S. Army Alaska, Fort Wainwright, AK, and CH2M Hill, Inc., Anchorage, AK. Prepared by ABR, Inc. Environmental Research & Services. July.

APLIC (Avian Power Line Interaction Committee). 2006. Suggested practices for avian protection on power lines: The state of the art in 2006. Edison Electric Institute, APLIC, and California Energy Commission, Washington, D.C. and Sacramento, California.

____. 2012. Reducing avian collisions with power lines: The state of the art in 2012. Edison Electric Institute and APLIC, Washington, D.C.

CALFIRE (California Department of Forestry and Fire Protection). 2024. Fresno Kings Unit Battalion 12. Accessed January 13, 2025. Available online at: Fresno Kings Unit Battalion 12 - Fresno County Fire Protection District.

____. 2025. Fire Hazard Severity Zones in State Responsibility Area. Accessed January 2025. Available online at: Fire Hazard Severity Zones in State Responsibility Area.

Caltrans (California Department of Transportation). 2025. California State Scenic Highway System Map. Accessed January 2025. Available online at: California State Scenic Highway System Map.

CARB (California Air Resources Board). 2005. Air Quality and Land Use Handbook: A Community Health Perspective. Accessed January 2025. Available online at: ARB's Air Quality and Landuse Handbook.

_____. 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. Accessed January 2025. Available online at: 2022 Scoping Plan Update.

Cauble, K. and R.S. Wagner. 2005. Sublethal effects of the herbicide glyphosate on amphibian metamorphosis and development. Bulletin of Environmental Contamination and Toxicology. 75:429–435.

CDFW (California Department of Fish and Wildlife). 2015. SWAP Final 2015 Document. Available online at: https://wildlife.ca.gov/SWAP/Final#swap2015.

_____. 2023a. Special vascular plants, bryophytes, and lichens list. Quarterly publication. Prepared by CDFW, Sacramento, California. Available online at: California's Rare, Threatened and Endangered Plants.

_____. 2023b. California Natural Diversity Database (CNDDB). RareFind, Version 5. Electronic Database. Natural Heritage Division, CDFW, Sacramento, CA. Available at: https://www.wildlife.ca.gov/data/cnddb/maps-and-data. Accessed June 2023.

_____. 2023c. California Natural Diversity Database (CNDDB) Spotted Owl Viewer (SOV). BiosVersion 6. Electronic database. Natural Heritage Division, CDFW, Sacramento, California. Available at: https://wildlife.ca.gov/data/cnddb/maps-and-data#43018408- cnddb-in-bios. Accessed June 2023.

_____.2025. California Natural Diversity Database (CNDDB), RareFind Version 5. Electronic Database. Natural Heritage Division, CDFW, Sacramento, California. Accessed March 2022. Available online at: CNDDB Maps and Data. Accessed June 2025.

CDPR (California Department of Pesticide Regulation). 2018. An investigation of anticoagulant rodenticide data submitted to the Department of Pesticide Regulation.

CEDEN (California Environmental Data Exchange Network). 2020. State Water Resources Control Board, Sacramento, California. Accessed November 17, 2020, at CEDEN - California Environmental Data Exchange Network.

Chen, C. W. 1972. Limnological Study for Helms Pumped Storage Project. Prepared for Pacific Gas & Electric Co., Department of Engineering Research, Emeryville, California. Prepared by Water Resources Engineers, Inc., Walnut Creek, California 94598.

Comstock, B.A., S.L. Sprinkle, and G.R. Smith. 2011. Acute toxic effects of round-up herbicide on wood frog tadpoles (Rana sylvatica). Journal of Freshwater Ecology 22(4):429– 435.

County of Fresno. (n.d.-a). Residential Recycling and Solid Waste Disposal. Accessed January 2025. Available online at: Recycling and Solid Waste Disposal - County of Fresno.

____. (n.d.-b). Special Districts Administration. Accessed January 2025. Available online at: Special Districts Administration - County of Fresno.

____. 2022. General Plan Review and Zoning Ordinance Update Program Environmental Impact Report: Public Review Draft (SCH # 2018031066). Accessed January 2025. Available online at: Fresno County General Plan Review and Zoning Ordinance Update (pp. 4.17-5).

County of Fresno Department of Public Works and Planning, Mapping Division. 2022. Web App Viewer. Accessed January 2025. Available online at: COUNTY OF FRESNO - ZONING.

CVRWQCB (California Regional Water Quality Control Board Central Valley Region). 2018. Water Quality Control Plan for the Tulare Lake Basin Third Edition. Revised May 2018 (with approved amendments). Accessed December 2024. Available online at: Water Quality Control Plan For The Tulare Lake Basin Third Edition.

Davis, J.A., A.R. Melwani, S.N. Bezalel, J.A. Hunt, G. Ichikawa, A. Bonnema, W.A. Heim, D. Crane, S. Swenson, C. Lamerdin, and M. Stephenson. 2010. Contaminants in Fish from California Lakes and Reservoirs, 2007-2008: Summary Report on a Two-Year Screening Survey. A Report of the Surface Water Ambient Monitoring Program (SWAMP). California State Water Resources Control Board, Sacramento, California.

Delany, D.K., T.G. Grubb, P. Beier, L.L., Pater, and M. Hildegard Reiser. 1999. Effects of helicopter noise on Mexican spotted owls. The Journal of Wildlife Management. 63(1):60–76.

DOC (California Department of Conservation). 2016. Mines Online. Accessed January 2025. Available online at: Mines Online.

____. 2022. Farmland Mapping and Monitoring Program. Accessed January 2025. Available online at: Farmland Mapping & Monitoring Program.

____. 2024. California Williamson Act Enrollment Finder. Accessed January 2025. Available online at: California Williamson Act Enrollment Finder.

eBird. 2023. eBird: An online database of bird distribution and abundance. eBird, Ithaca, NY. Available at: ebird.org/explore. Accessed June 2023.

FERC (Federal Energy Regulatory Commission) 2022. FERC letter to PG&E. January 3 and April 28, 2022, Oil releases in Courtright Reservoir. November 15, 2022.

Forest Service (U.S. Department of Agriculture, Forest Service). 2021a. CALVEG Zone 4: South Sierra. Available at: https://www.fs.usda.gov/detail/r5/landmanagement/resourcemanagement/

?cid=stelprdb5347192.

____. 2021b. Sierra National Forest fire history GIS layer. Provided by Sierra National Forest.

____. 2023a. Sierra National Forest Species of Conservation Concern. May 2023.

____. 2023b. Natural Resource Information System (NRIS) Data. August update.

Provided by Region 5, Vallejo, CA.

Fresno County. 2024. Fresno County Code of Ordinances. Accessed May 2025 at: https://library.municode.com/ca/fresno_county/codes/code_of_ordinances

Fresno County Sheriff's Office. 2024. "Patrol Areas." Accessed January 13, 2025. Available online at: The Fresno County Sheriff-Coroner's Office - Patrol Areas.

Fresno Local Agency Formation Commission. 2007. Executive Officer's Report: Consent Agenda Item No. 7. Fresno Local Agency Formation Commission. Accessed January 10, 2025. Available online at: 2009 Del Rey CSD MSR Revised Final Draft.pdf.

Froneman, A. 2006. Bird impact assessment study, bird helicopter interaction on the Bitou River. Endangered Wildlife Trust. Parkview, Alaska. July.

GANDA (Garcia and Associates). 2015. Courtright Dam Upstream Face Repair Project Sensitive Species Pre-activity Survey. Prepared for PG&E. Prepared by GANDA, San Anselmo, CA. August 26.

Grinnell J., J.S. Dixon, and J.M. Linsdale. 1937. Fur-bearing mammals of California. University of California Press, Berkeley, USA.

Grubb, T.G. and W.B. Bowerman. 1997. Variations in breeding bald eagle responses to jets, light planes, and helicopters. Journal of Raptor Research. 31(3):213–222.

Harris, J. 2021a. Life history account for fringed myotis. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available at: https://wildlife.ca.gov/Data/CWHR/Life-History- and-Range. Accessed September 2, 2021.

____. 2021b. Life history account for pallid bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available at: https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range. Accessed September 2, 2021.

____. 2023a. Life history account for long-eared myotis. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available at: https://wildlife.ca.gov/Data/CWHR/Life-History- and-Range. Accessed May 12, 2023.

____. 2023b. Life history account for Yuma myotis. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. https://wildlife.ca.gov/Data/CWHR/Life-History-and-Range. Accessed May 15, 2023.

____. 2023c. Life history account for Western red bat. California Department of Fish and Wildlife, California Interagency Wildlife Task Group, California Wildlife Habitat Relationships System. Available at: https://wildlife.ca.gov/Data/CWHR/Life-History- and-Range. Accessed May 15, 2023.

Lloyd, A.C. and J.E. Denton. 2005. General protocol for sport fish sampling and analysis. State of California Pesticide and Environmental Toxicology Branch Office of Environmental Health Hazard Assessment California Environmental Protection Agency. December.

Moyle, P.B. 2002. Inland fishes of California. University of California Press, Berkeley and Los Angeles, California. 502 pp.

Moyle, P.B., R.M. Yoshiyama, and R.A. Knapp. 1996. Status of fish and fisheries. Sierra Nevada Ecosystem Project: Final Report to Congress. Vol. II, Assessments and Scientific Basis for Management Options. University of California, Centers for Water and Wildland Resources, Davis, CA.

PG&E (Pacific Gas and Electric Company). 1986. Assessment of the Proposed Helms Housing Project on fishery, botanical and wildlife resources. Prepared by PG&E Department of Engineering Research. Report 430-86.2. March.

____. 1990. Helms Pumped Storage Project (FERC 2735): Effects of pumped storage operations on water quality in Lake Wishon and Courtright Lake. Report 026.11-90.5. Prepared by S.G. Ahern and C.O. White.

____. 1993. Helms Pumped Storage Project. Lost Canyon mitigation monitoring report.

____. 1995. Helms Pumped Storage Project. Lost Canyon mitigation monitoring report.

____. 2016. Nesting Bird Management Plan: Biologist Guidelines for PG&E Utility Operations, Maintenance, and Projects. February.

____. 2017a. Avian protection plan: PG&E’s program to address avian electrocutions, collisions, and nesting birds. August.

____. 2017b. PG&E letter to FERC. Helms Pumped Storage Project (FERC No. 2735) Report on hazardous substances at Helms Support Facility. March 13, 2017.

____. 2017c. PG&E letter to FERC. Helms Pumped Storage Project (FERC No. 2735) Report on hazardous substances at Courtright Reservoir. October 11, 2017.

____. 2021. Helms Pumped Storage Project. FERC Project No. 2735. Pre-Application Document (PAD). Accessed January 2025.

____. 2023. Fisheries monitoring report: 2022 Fish population, stream channel, western pond turtle, and foothill yellow-legged frog monitoring, Haas-Kings River Project, FERC Project No. 1988. Prepared by Kleinfelder.

____. 2024. Helms Pumped Storage Project FERC Project No. 2735 Application for New License, Major Project – Existing Dam Volume II – Exhibit E (Public), pg. 57-58.

____. 2025. Historic Properties Management Plan (HPMP).

Quaranta A., V. Bellantuono, G. Cassano, C. Lippe. 2009. Why amphibians are more sensitive than mammals to xenobiotics. PloS ONE 4(11): e7699.

SCAQMD (South Coast Air Quality Management District). 2008. Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold. Available online at: GHGguidance. Accessed January 2025.

SCAT (Sierra Nevada Red Fox Conservation Advisory Team). 2022. A conservation strategy for the Sierra Nevada Red Fox. California Department of Fish and Wildlife, Sacramento, CA. Available at: https://wildlife.ca.gov/Conservation/Mammals/Sierra-Nevada-Red- Fox/Strategy.

SJVAPCD (San Joaquin Valley Air Pollution Control District). 2009. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. Available online at: CCAP - FINAL LU Guidance - Dec 17 2009. Accessed January 2025.

_____. 2015. Guidance for Assessing and Mitigating Air Quality Impacts. Accessed January 2025. Available online at: CCAP - FINAL LU Guidance - Dec 17 2009.

_____. 2025. Ambient Air Quality Standards and Valley Attainment Status. Accessed January 2025. Available online at: Ambient Air Quality Standards & Valley Attainment Status | Valley Air District.

State of California. 2024. CEQAnet Web Portal database search. Available at: https://ceqanet.opr.ca.gov/Search/Advanced. Accessed February 20, 2024.

State Water Board (State Water Resources Control Board). 2010. Storm Water Program. Available online at: Storm Water Program | California State Water Resources Control Board.

____. 2019. Law and Regulations. Available online at: Laws and Regulations | California State Water Resources Control Board.

____. 2022. 2020-2022 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report). Available online at: 2020-2022 California Integrated Report | California State Water Resources Control Board.

____. 2025. GeoTracker. Accessed January 2025. Available online at: GeoTracker+.

Stebbins, J.C. 2014. Courtright ID Gate Project, botanical study report. Prepared for Pacific Gas and Electric Company, San Ramon, CA. August 13.

____. 2012. Trapper Springs Trail Project, botanical study report. December 30, 2011. Revised 2012. Prepared for Pacific Gas and Electric Company, San Ramon, CA. July 19.

_____. 1987. Rare plant survey of the PG and E Helms Housing 21 kV Pole Line Project area. Prepared for Pacific Gas and Electric Company, San Ramon, California. Prepared by John C. Stebbins. October 9.

_____. 1985. Rare and Endangered Plant Study of the PG&E Helms Housing Project Area. Technical Report. Prepared for Pacific Gas and Electric Company, San Ramon, California. Prepared by John C. Stebbins. September 15.

USEPA (U.S. Environmental Protection Agency). 2012. Water: Monitoring & Assessment- 5.9 Conductivity.6 Mar. 2012.

_____. 2023. National recommended aquatic life water quality criteria web page. Accessed February 2, 2024, at National Recommended Water Quality Criteria - Aquatic Life Criteria Table | US EPA U.S. Environmental Protection Agency, Washington, D.C.

_____. 2025. National Aquatic Resource Surveys Indicators: Conductivity. January 10, 2025.

USFWS (U.S. Fish and Wildlife Service). 2007. Conservancy fairy shrimp (*Branchinecta conservation*) 5-year review: Summary and evaluation. Sacramento, California. September.

_____. 2018. USFWS Comments on the Notice Ready for Environmental Analysis for the Bucks Creek Hydroelectric Project, Federal Energy Regulatory Commission Project No. P- 619; Plumas County, California. Memorandum from Field Supervisor, San Francisco Bay-Delta Fish and Wildlife Office Sacramento, California to Regional Environmental Officer, Office of Environmental Policy and Compliance Oakland, California.

_____. 2020. Fresno kangaroo rat (Dipodomys nitratoides exilis) 5-year review: Summary and evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, CA.

_____. 2021. National Wetlands Inventory (NWI) wetlands and riparian polygon data. Geospatial wetlands data. USFWS, Arlington, VA. Available at: https://www.fws. gov/program/national-wetlands-inventory.

_____. 2023a. Information for Planning and Consultation (IPaC): Online project planning tool. Accessed August 2023. Available online at: IPaC: Home.

_____. 2023b. ECOS. Environmental Conservation Online System. Accessed August 2023. Available online at: ECOS: Home.

USGS (U.S. Geological Survey). 2011. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California.

APPENDIX A
Proposed Resource Management Plans

Fire Management Plan

Recreation

Biology

APPENDIX B
Existing and Proposed Project Boundary Maps

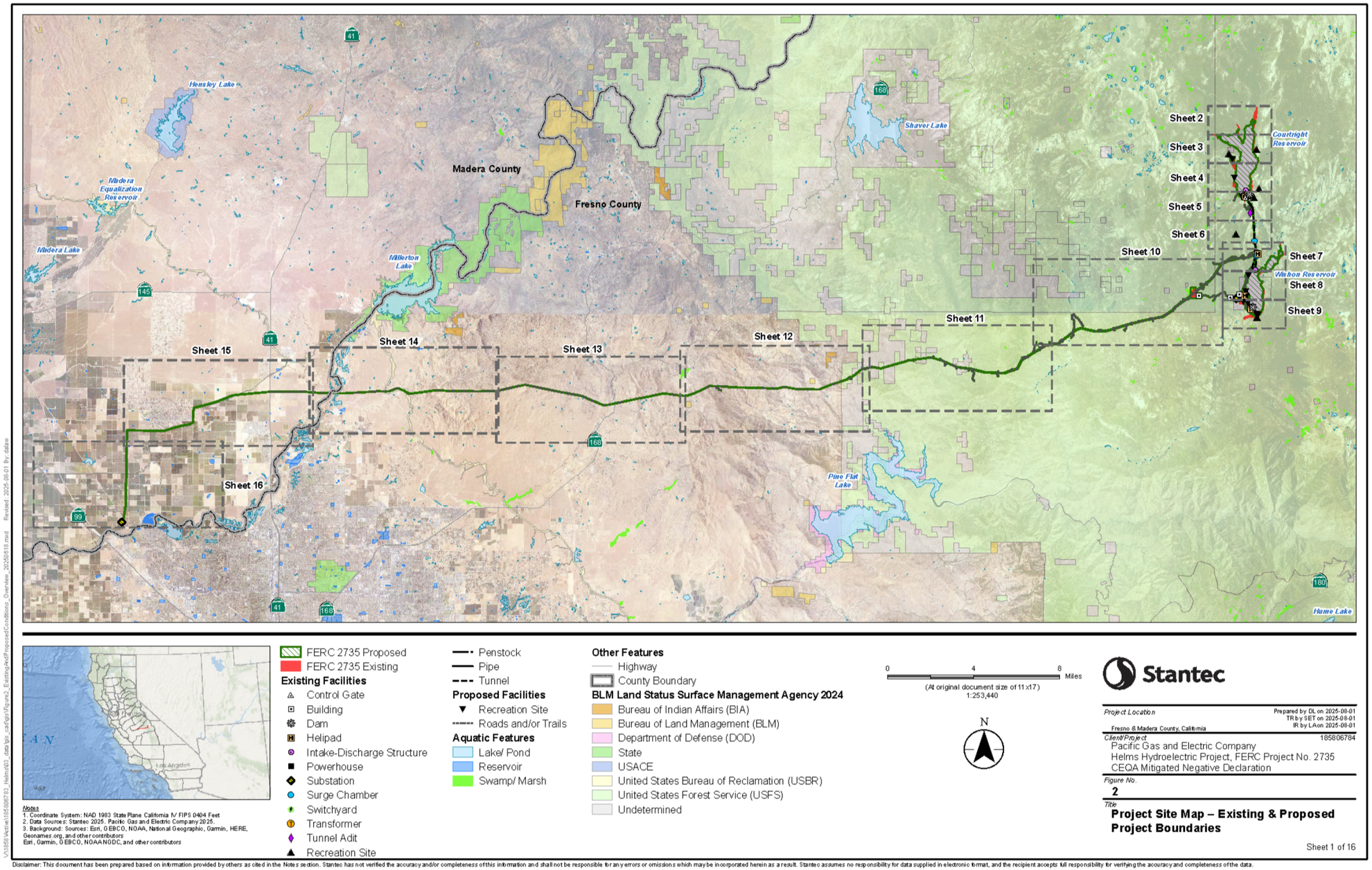
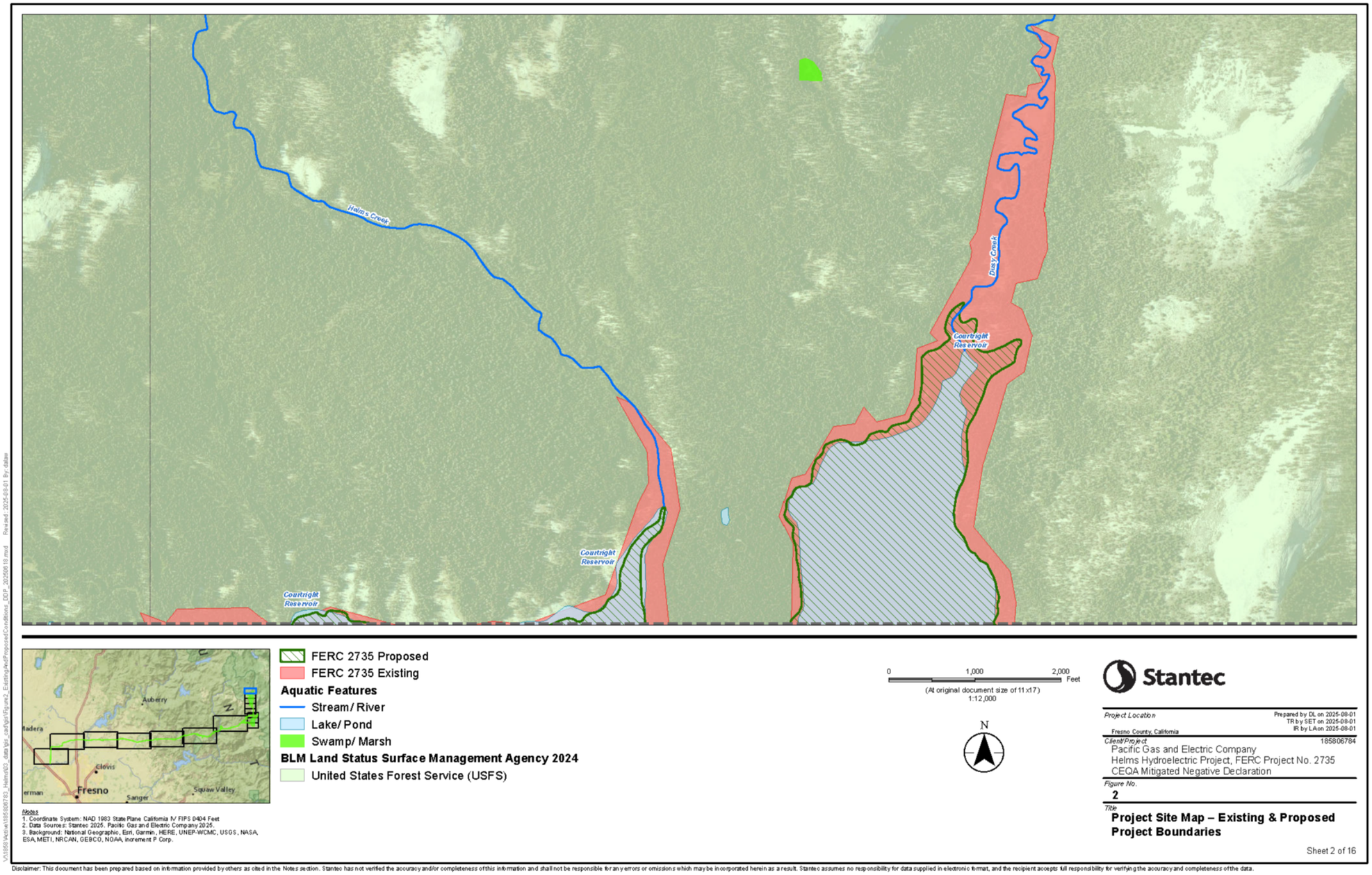


Figure B1a. Helms Pumped Storage Project Existing and Proposed Project Boundaries



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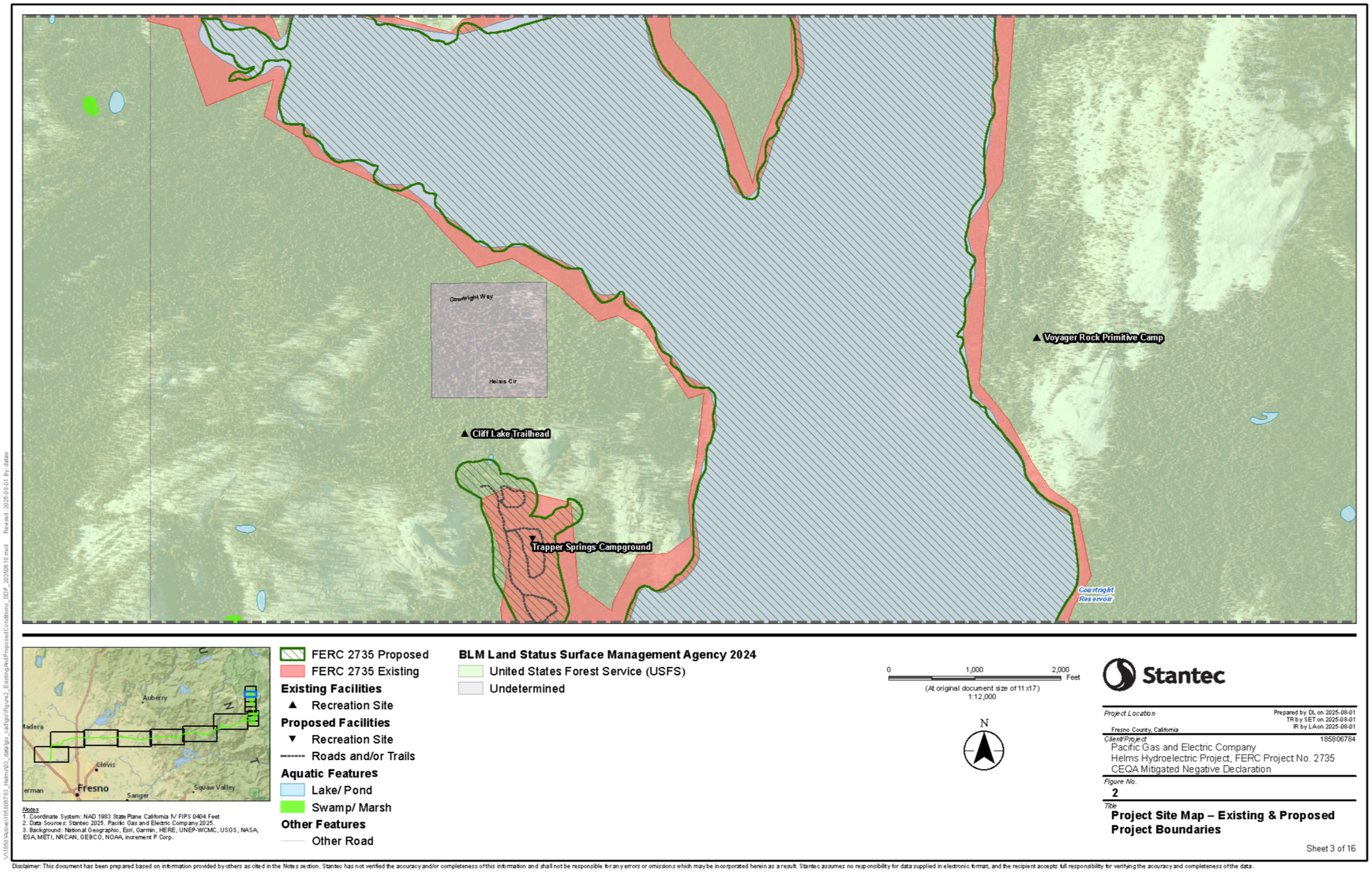

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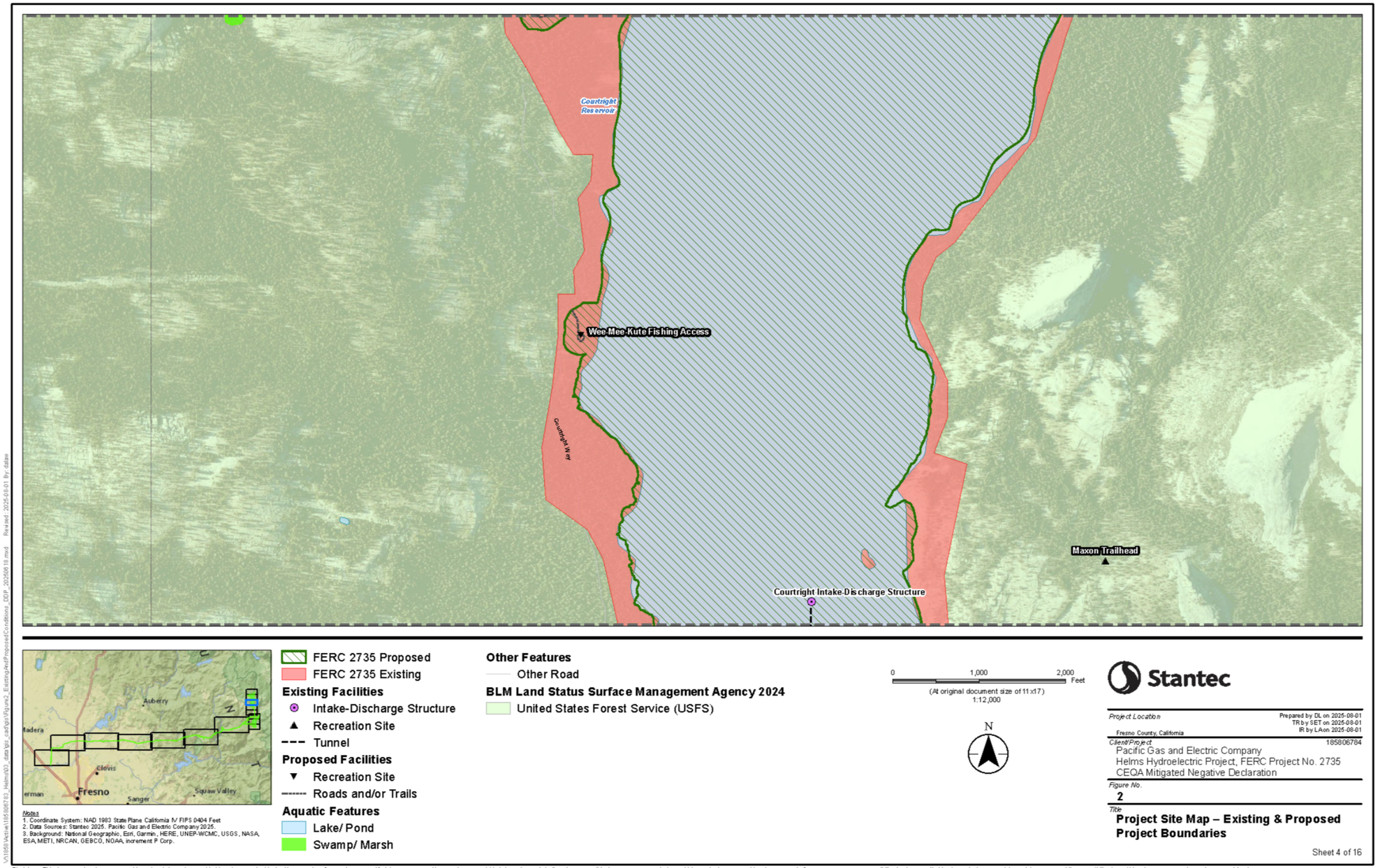

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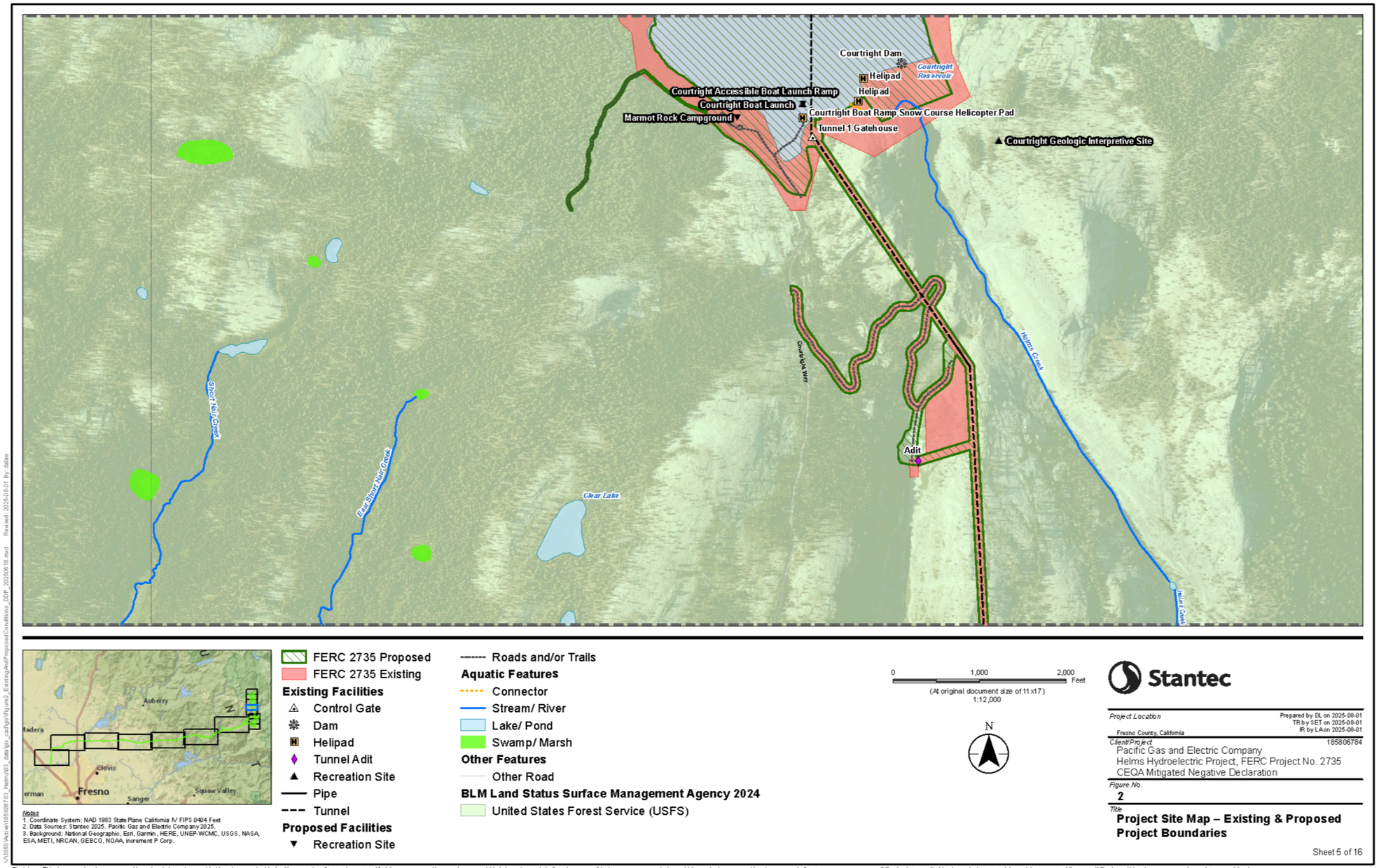

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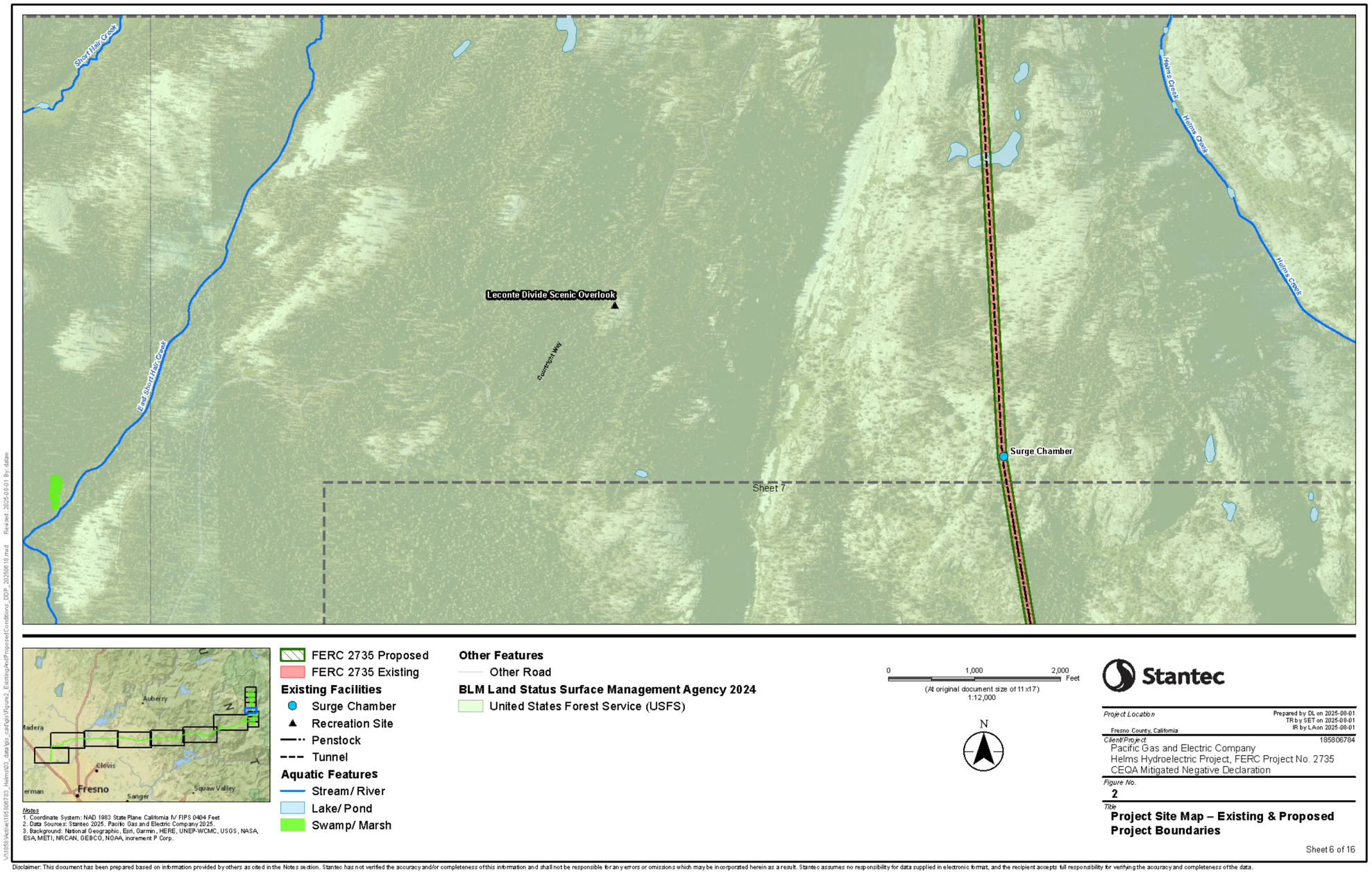

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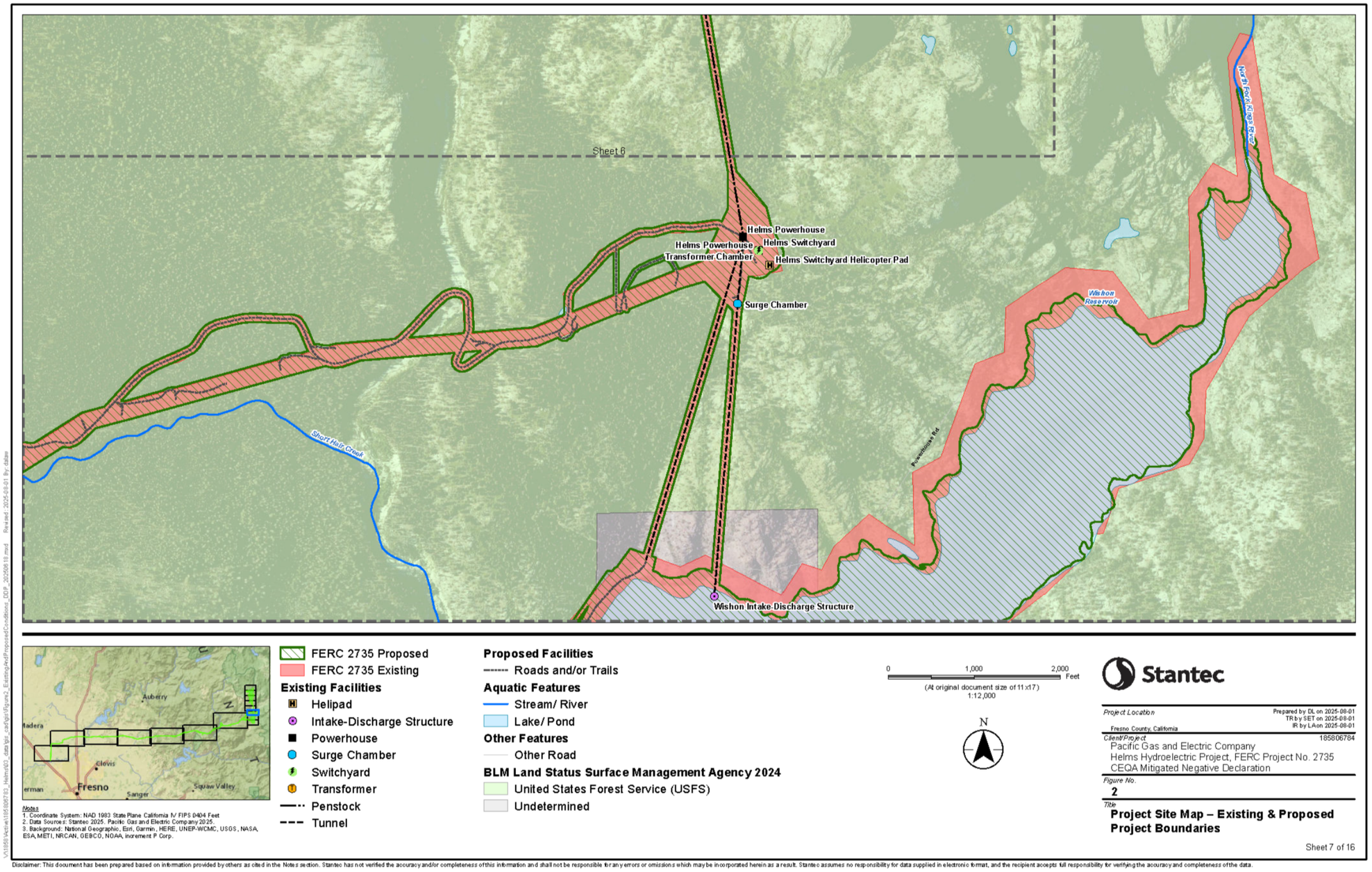


Figure B1g. Helms Pumped Storage Project Existing and Proposed Project Boundaries

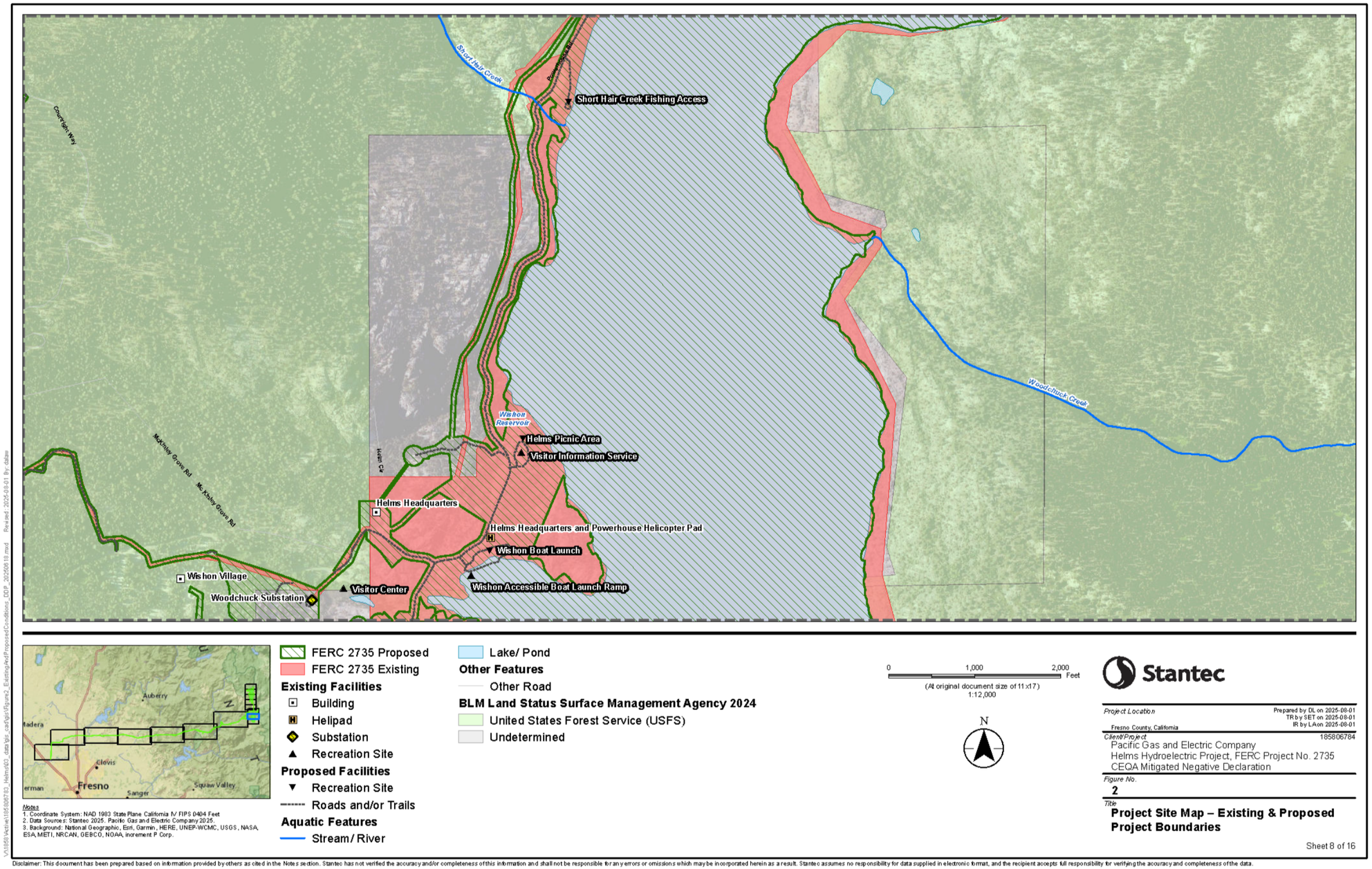


Figure B1h. Helms Pumped Storage Project Existing and Proposed Project Boundaries

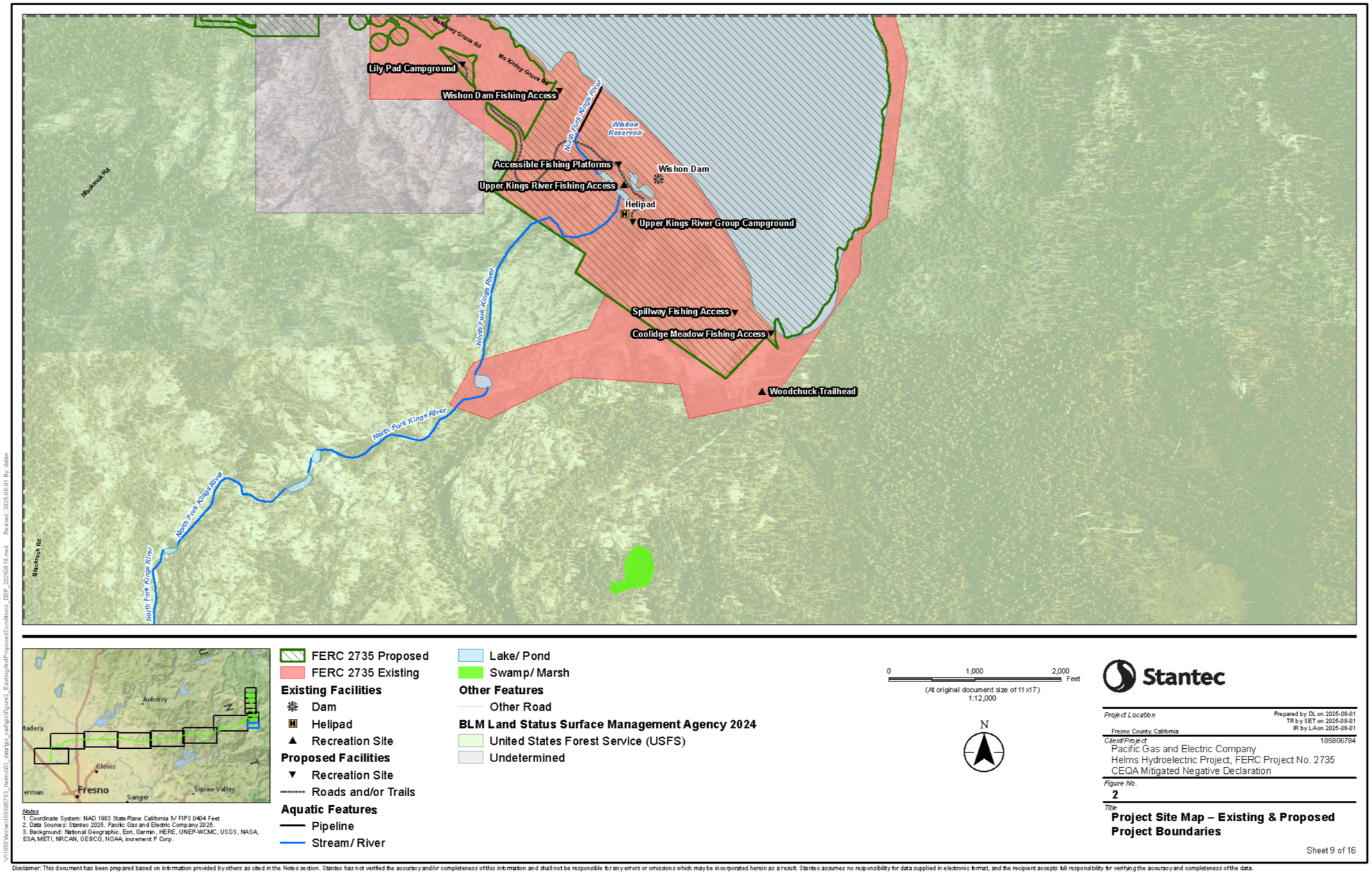
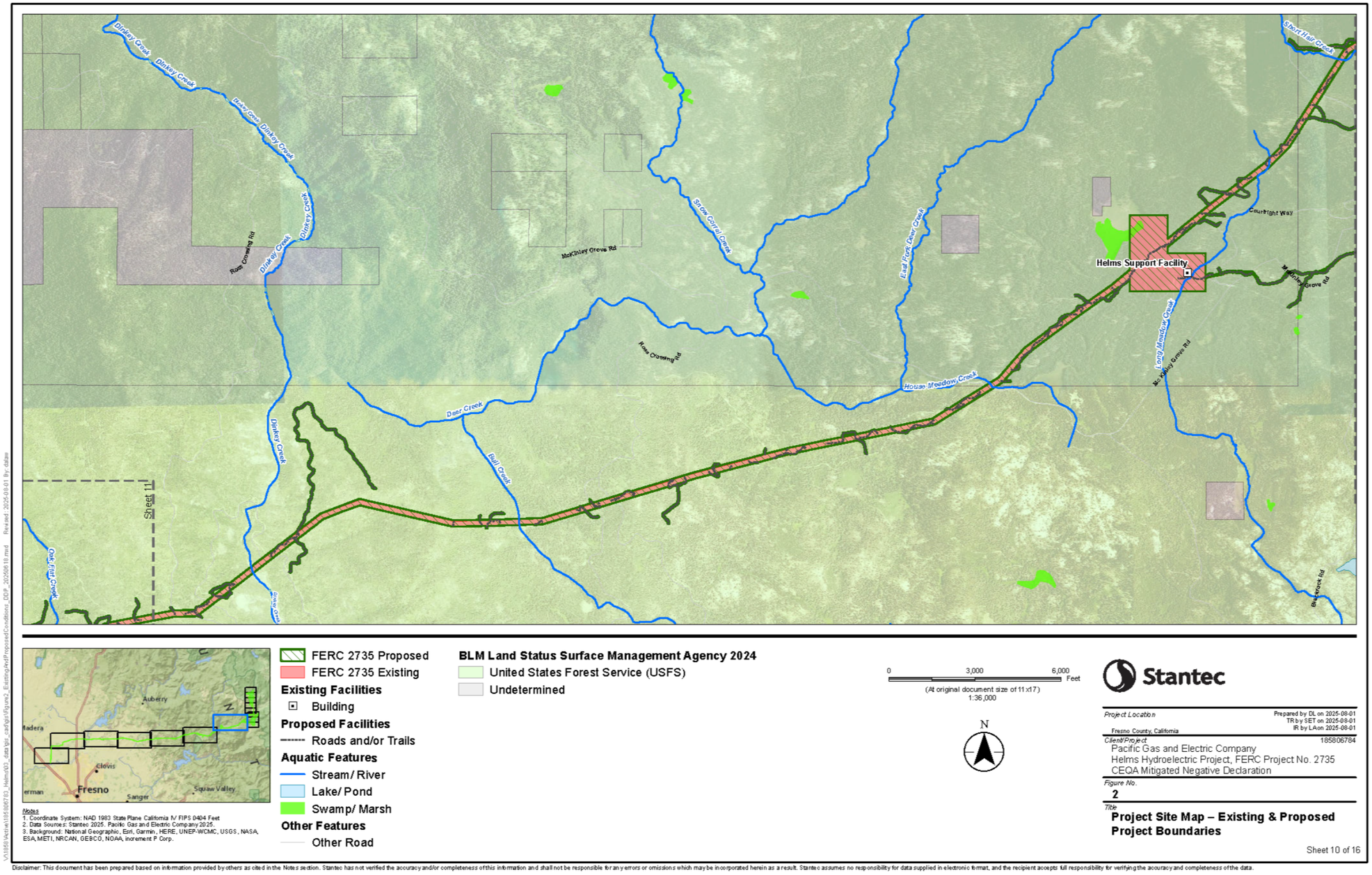


Figure B1i. Helms Pumped Storage Project Existing and Proposed Project Boundaries



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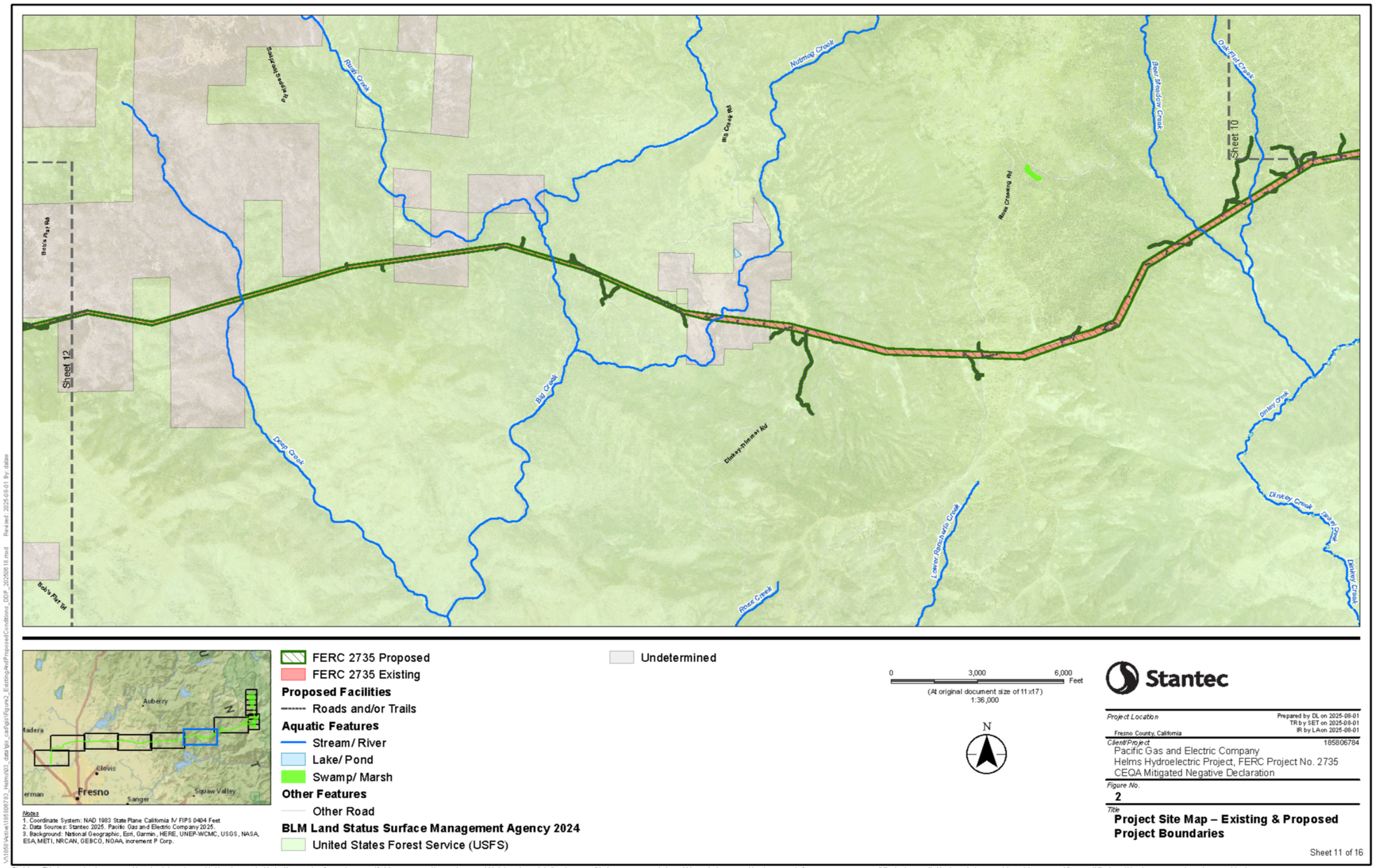

Figure B1k. Helms Pumped Storage Project Existing and Proposed Project Boundaries

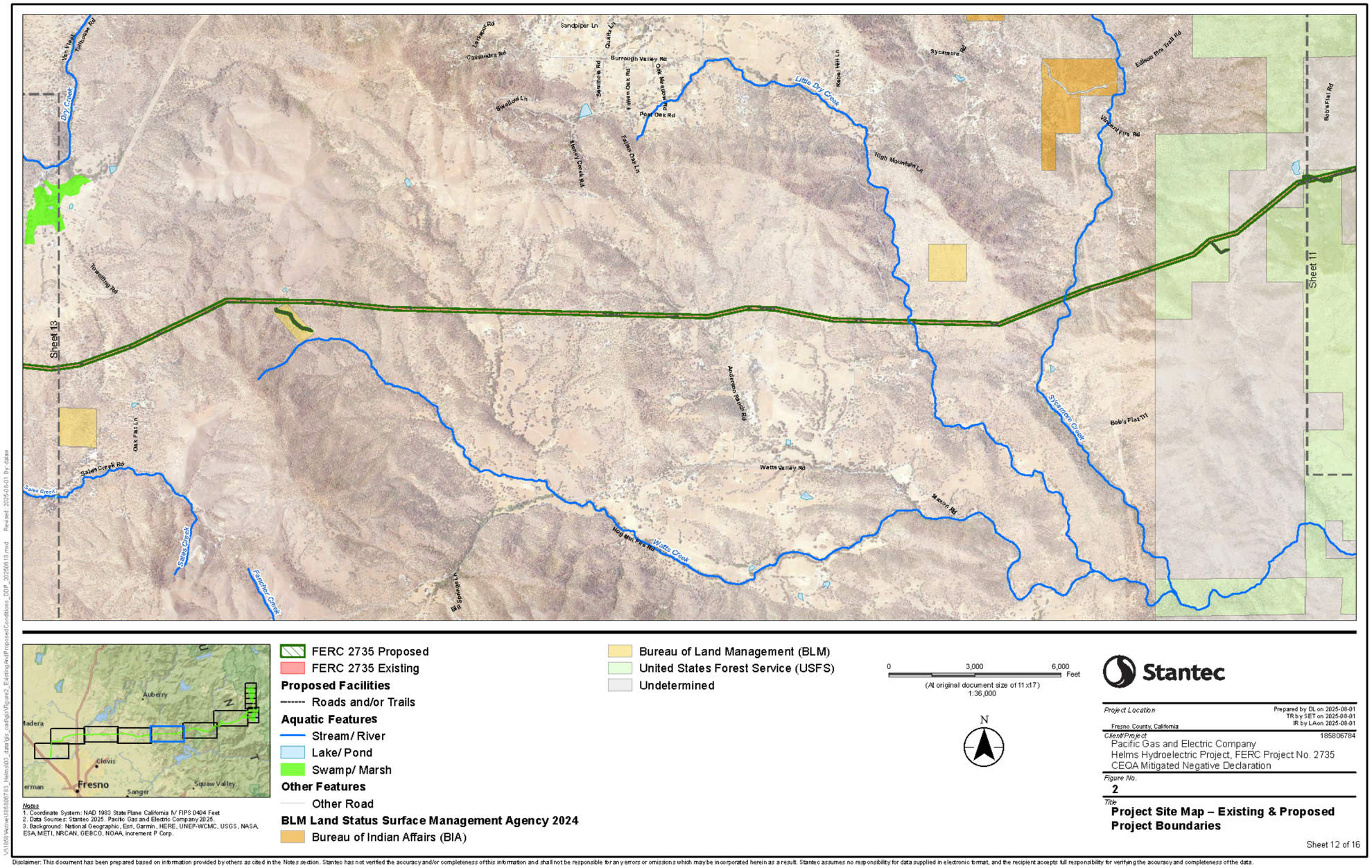

Figure B1l. Helms Pumped Storage Project Existing and Proposed Project Boundaries

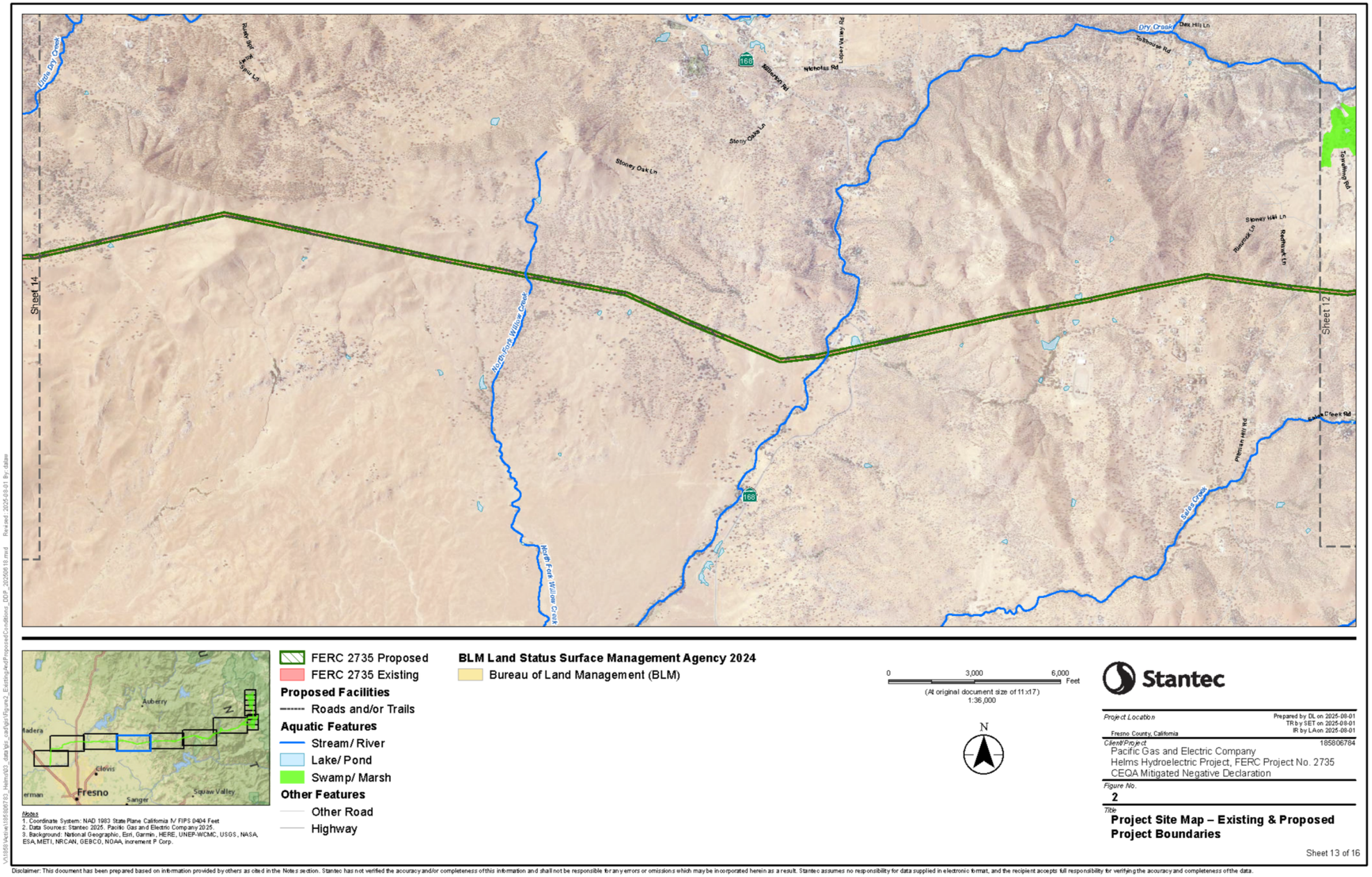

Figure B1m. Helms Pumped Storage Project Existing and Proposed Project Boundaries

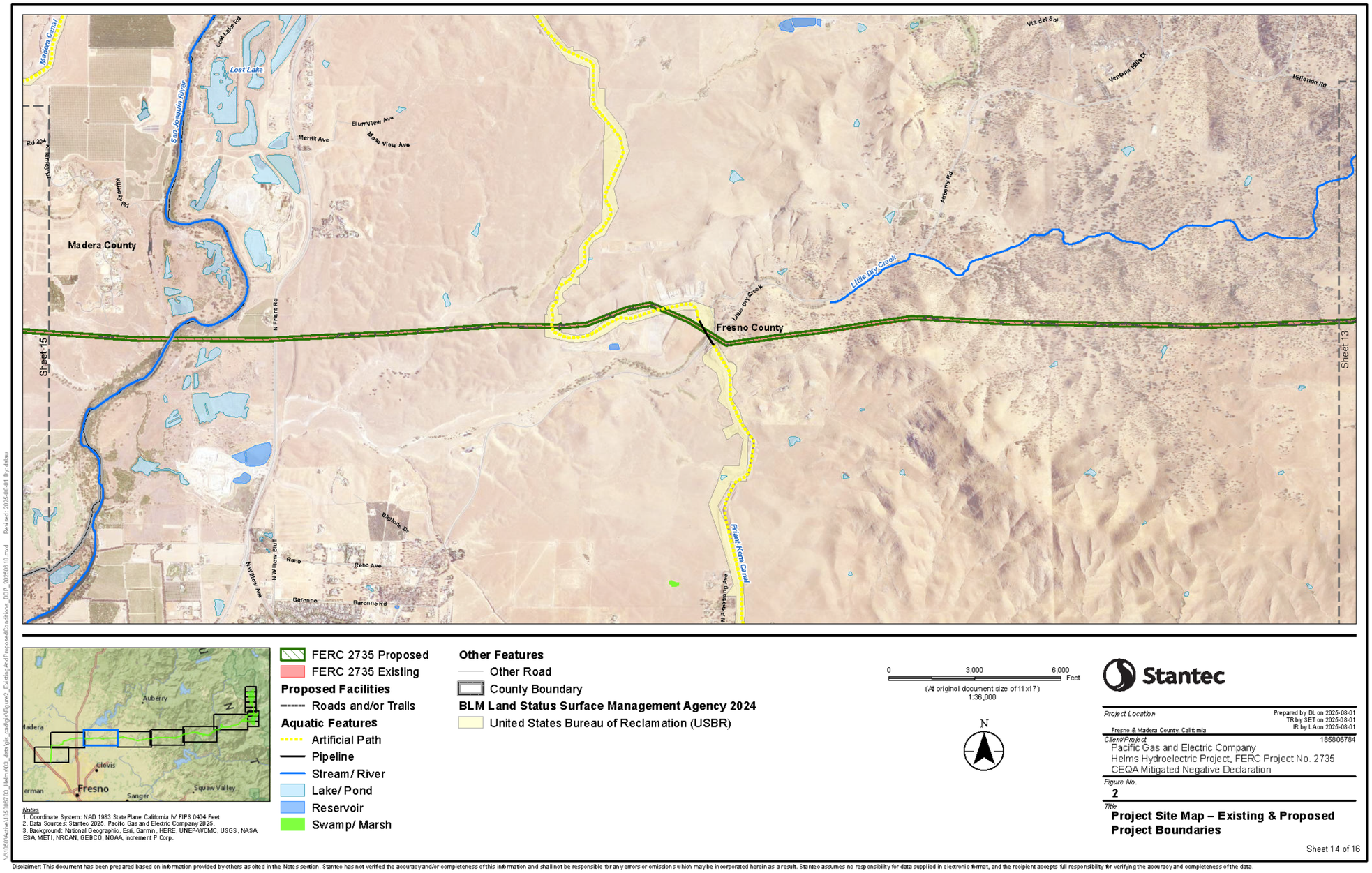

Figure B1n. Helms Pumped Storage Project Existing and Proposed Project Boundaries

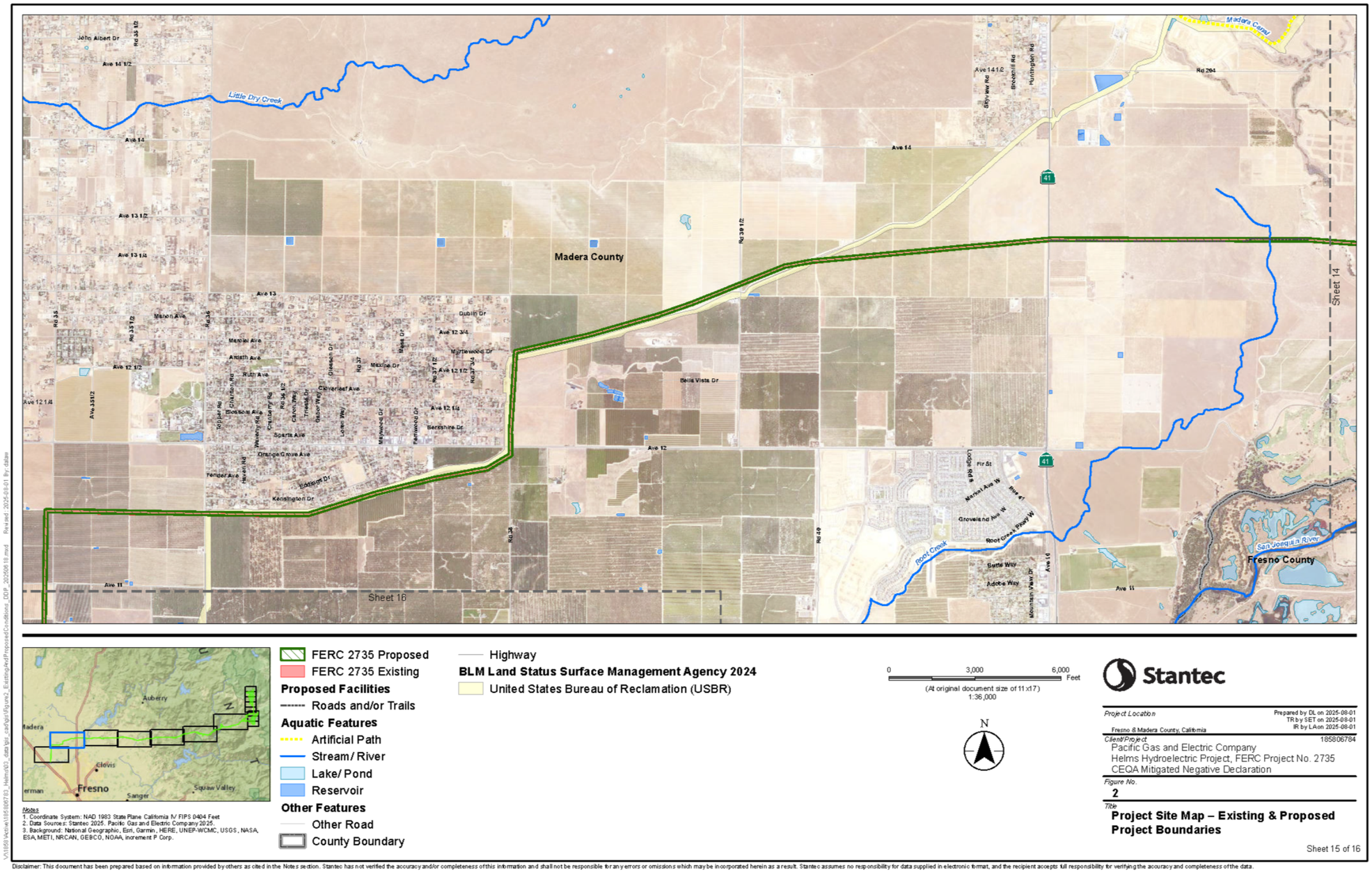

Figure B1o. Helms Pumped Storage Project Existing and Proposed Project Boundaries

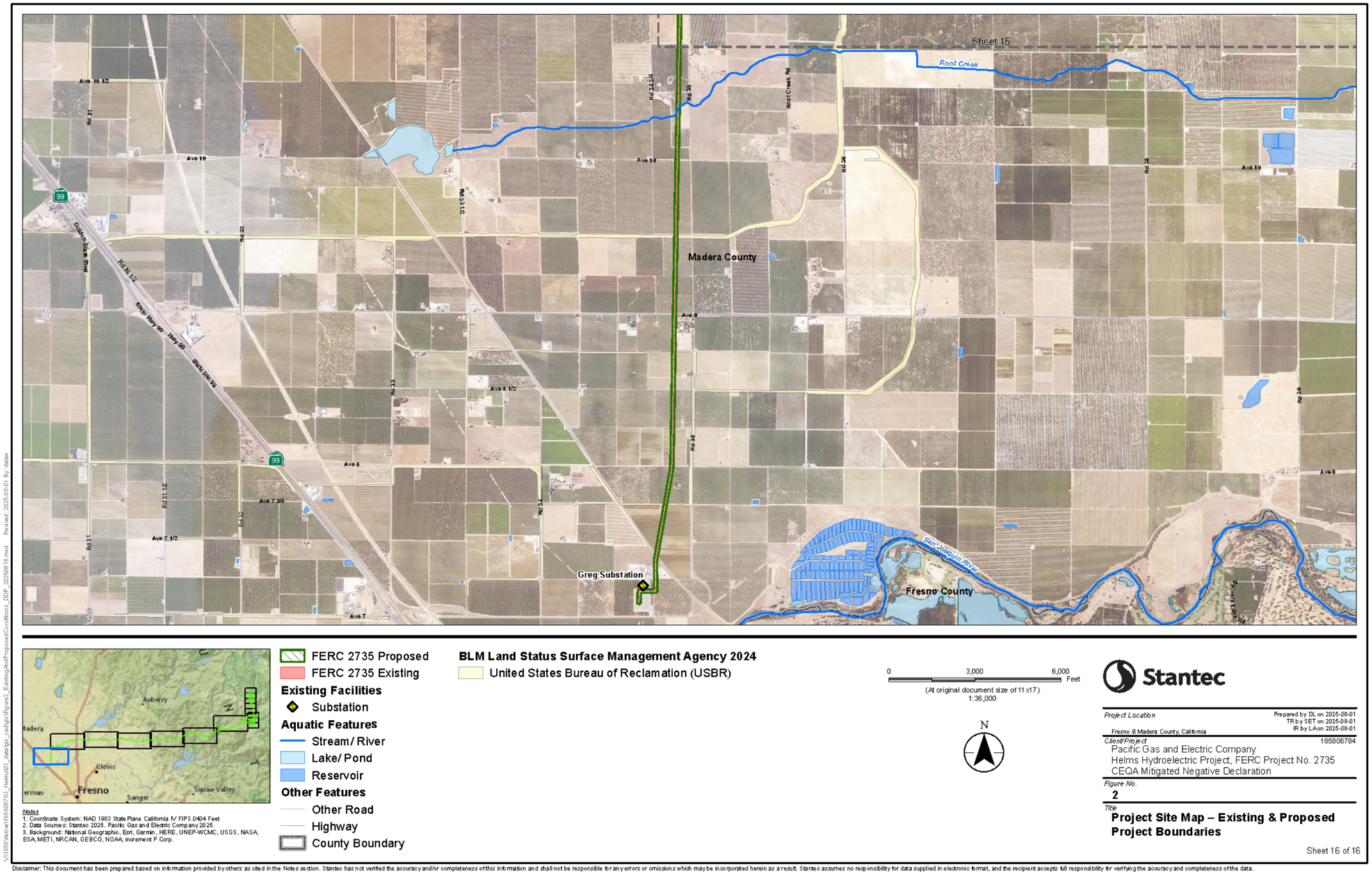

Figure B1p. Helms Pumped Storage Project Existing and Proposed Project Boundaries