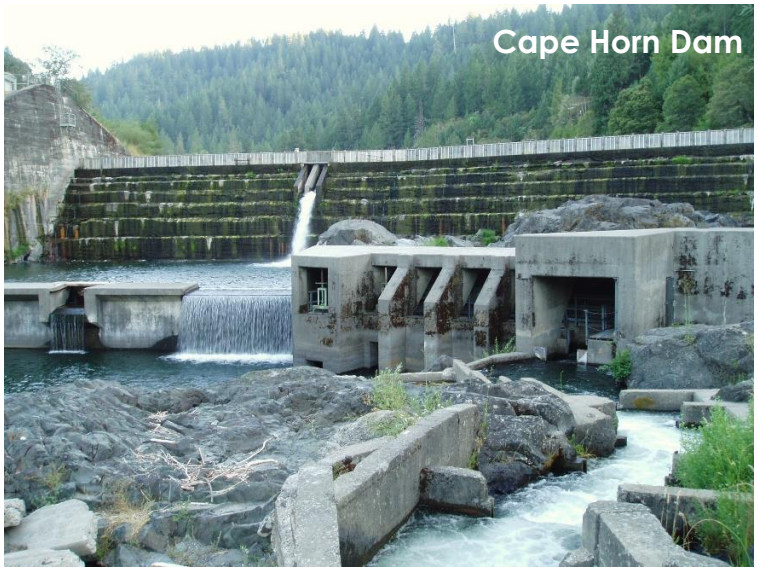
PACIFIC GAS AND ELECTRIC COMPANY

Potter Valley Hydroelectric Project
(FERC Project No. 77)

Initial Draft Surrender Application and Conceptual Decommissioning Plan



November 2023

PACIFIC GAS AND ELECTRIC COMPANY

POTTER VALLEY HYDROELECTRIC PROJECT
(FERC Project No. 77)

Initial Draft Surrender Application and Conceptual Decommissioning Plan

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List of Acronyms

CDFW	California Department of Fish and Wildlife
DSOD	Division of Safety of Dams
FERC	Federal Energy Regulatory Commission
ILP	Integrated Licensing Process
MNF	Mendocino National Forest
MW	megawatt
NAVD88	National Vertical Datum of 1988
NFSL	National Forest System Lands
NGVD29	National Geodetic Vertical Datum of 1929.
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
PAD	Pre-Application Document
PG&E	Pacific Gas and Electric Company
PVID	Potter Valley Irrigation District
PVP	PVP 77 LLC
RPA	Reasonable and Prudent Alternative
RPM	Revolutions per minute
SHPO	State Historic Preservation Officer
USACE	United States Army Corps of Engineers
USFS	United States Forest Service
USGS	United States Geological Survey
USSD	United States Society on Dams

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1.0 INTRODUCTION

On January 25, 2019, Pacific Gas and Electric Company (PG&E) filed a Notice of Withdrawal of its Notice of Intent (NOI) and Pre-Application Document (PAD) with the Federal Energy Regulatory Commission (FERC or Commission) for the Potter Valley Hydroelectric Project (Project), FERC Project No. 77, stating that PG&E is: 1) discontinuing its efforts to relicense the Project; and 2) terminating its efforts to transfer or sell the Project.[1] In response to PG&E's Notice of Withdrawal, on March 1, 2019, FERC issued a Notice Soliciting Applications[2] from any party interested in filing a license application for a new license for the Project, stating that applicants must first file a NOI and PAD.

Given the FERC's solicitation did not result in a viable new applicant, on May 11, 2022, FERC directed PG&E to provide a plan and schedule for submitting a Surrender Application and Decommissioning Plan (Surrender Application) by July 11, 2022.[3] In response, PG&E timely filed a proposed plan and schedule on July 8, 2022.[4] The plan and schedule stated that PG&E would file a Surrender Application with FERC within 30 months after FERC approval of the proposed plan and schedule. FERC approved PG&E's proposed plan and schedule on July 29, 2022.[5] Therefore, the deadline for filing of the Surrender Application is January 29, 2025.

As shown in Table 1-1 (key process milestones), Tribes, regulatory agencies, and other interested parties (e.g., local governments, non-governmental organizations [NGO's], and members of the public) have two opportunities for public review. The Initial Draft Surrender Application is the first opportunity for public review. The subsequent Final Draft Surrender Application (available in June 2024) is the second opportunity for public review. The Final Draft Surrender Application will include an environmental analysis (Exhibit E).

Table 1-1. Key Process Milestones for Development and Submittal of the Surrender Application.

Distribution of Initial Draft Surrender Application	November 17, 2023
Deadline for Comments on Initial Draft Surrender Application	December 22, 2023
Initial Consultation with Resource Agencies and Tribes	December 2023 – February 2024
Distribution of Final Draft Surrender Application	June 3, 2024
Consultation with Resource Agencies and Tribes	June 2024
Deadline for Comments on Final Draft Surrender Application	July 18, 2024
Filing and Distribution of Final Surrender Application	January 29, 2025

[1] FERC Accession No. 20190125-5100
[2] FERC Accession No. 20190301-3038
[3] FERC Accession No. 20220511-3004
[4] FERC Accession No. 20220708-5267
[5] FERC Accession No. 20220729-3016

This Initial Draft Surrender Application was prepared and distributed to Tribes, regulatory agencies, and other interested parties on November 17, 2023, to provide the following information:

- Description of the existing Project (Section 2.0 – Project Location and Facilities)
- Reason for the license surrender (Section 3.0 – Reason for Surrender)
- Description of PG&E's Conceptual Decommissioning Plan (Section 4.0 – Conceptual Decommissioning Plan)

PG&E's Conceptual Decommissioning Plan is presented herein to solicit comments on PG&E's proposed approach for the decommissioning of Project facilities. PG&E's goals upon conclusion of the decommissioning process are to: (1) remove the Project from FERC and Division of Safety of Dams (DSOD) jurisdiction; and (2) no longer operate or maintain the Project in the future. Potential project effects, proposed license surrender conditions, a conceptual restoration plan, and the associated exhibits will be included in the Draft Final Surrender Application to be distributed to Tribes, regulatory agencies, and other interested parties by June 3, 2024, for review and comment. Decommissioning of the Project by PG&E includes:

- Removal of Scott Dam and Cape Horn Dam followed by site restoration;
- Restoration of the remnant inundation zone of Lake Pillsbury and Van Arsdale Reservoir;
- Removal and restoration of recreational facilities (e.g., campgrounds; day-use facilities; recreation access roads and trails; kiosk; and boat ramps) located on Forest Service and PG&E land;
- Abandoning in place and capping underground Project facilities;
- Leaving in place Project facility access roads on private land; and
- Removal or leaving in place the remaining Project support facilities and features.

A description of PG&E's decommissioning activities for Scott Dam Area is provided in Section 4.2 and for Cape Horn Dam Area in Subsection 4.3.1.1.

PG&E also received a proposal from California Department of Fish and Wildlife (CDFW) California Trout, Humboldt County, Mendocino County Inland Water and Power Commission, the Round Valley Indian Tribes, Sonoma County Water Agency, and Trout Unlimited (collectively referred to as the Proponents) for Project facilities in the Cape Horn Dam Area. PG&E is soliciting comments from Tribes, regulatory agencies, and other interested parties on the Proponents proposal. The proposal is called the "New Eel-Russian Facility".

Proponents are committed to the coequal goals of (1) improving fish migration and habitat on the Eel River with the objective of achieving naturally reproducing, self-sustaining, and harvestable native anadromous fish populations and (2) maintaining material and continued water diversion from the Eel River through the existing tunnel to the Russian River to support water supply reliability, fisheries, and water quality in the Russian River basin.

The Regional Entity, a joint power authority, to be governed by a board comprised of the County of Sonoma, Sonoma County Water Agency, Mendocino County Inland Water and Power

Commission, and the Round Valley Indian Tribes, will be responsible for modifications at the former Cape Horn Dam site and Van Arsdale Diversion, as necessary, to construct the New Eel-Russian Facility. A description of the Regional Entity's proposed modifications to Cape Horn Dam is provided in Subsections 4.3.1.2 and 4.3.1.3; these proposed modifications are preliminary and subject to further design development and stakeholder input.

To implement the Regional Entity's proposed modifications, the Final Surrender Application would include a request to FERC to authorize the conveyance of property interests in various Project assets and facilities, including the existing intake and fish screen facilities, the tunnel and flowline, and the powerhouse and outlet works in order that they might be modified. If either approach is included in the Final Surrender Application, the Regional Entity will seek federal authority to complete the Facility as expeditiously as practicable after deconstruction. Such authority may be granted pursuant to a nonpower license, partial license transfer, or some other FERC approved procedure.

The deadline to submit comments on the Initial Draft Surrender Application is December 22, 2023. Electronic submittal of comments is encouraged. Please submit comments to:

Tony Gigliotti
Senior Licensing Project Manager
Power Generation
12840 Bill Clark Way
Auburn, CA 95602
E-mail: PVSurrender@pge.com

Information about PG&E's decommissioning process, including pertinent documents, are available at the following website: [http://pottervalleysurrenderproceeding.com].

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2.0 PROJECT LOCATION, FACILITIES, AND OPERATIONS

2.1 Introduction

This section describes PG&E's Project and current operations.

2.2 Project Location and Overview

The Project is located on the Eel River and the East Branch Russian River in Mendocino and Lake Counties, California. The Project is approximately 15 miles northeast of the City of Ukiah. The majority of the Project is located on land owned by PG&E and National Forest System Lands (NFSL) administered by the United States Forest Service (USFS), Mendocino National Forest (MNF). An overview of the major Project facilities and land jurisdictions in the vicinity of the Project are shown on Maps 2-1 and 2-2, respectively.

The uppermost portion of the 9.2 megawatt (MW) Project includes Scott Dam and the storage reservoir it impounds, Lake Pillsbury, on the Eel River. Below Scott Dam, the Eel River flows approximately 12 miles to Van Arsdale Reservoir, created by Cape Horn Dam. Cape Horn Dam has fish passage facilities, enabling salmon, steelhead, and lamprey to access the Eel River and tributary streams between Cape Horn Dam and Scott Dam. There are no fish passage facilities at Scott Dam. At Van Arsdale Reservoir, water that is diverted is conveyed south by a series of tunnels, conduits, and penstocks to the Potter Valley Powerhouse, while water remaining in the Eel River is released from, or spills over, Cape Horn Dam where it flows northwest approximately 150 miles to the Pacific Ocean. Releases made at Scott Dam and Cape Horn Dam support salmon and steelhead populations in the Eel River Watershed.

The Potter Valley Powerhouse is located in the Upper Russian River Watershed, and releases from the powerhouse are a major source of water in the East Branch Russian River and for local water users. The East Branch Russian River flows south from the Potter Valley Powerhouse (approximately 11 miles[1]) and is impounded by the U.S. Army Corps of Engineers' (USACE) Coyote Dam to form Lake Mendocino. Lake Mendocino is operated and managed by the USACE for the purposes of flood control and water supply, in coordination with Sonoma County Water Agency and Mendocino County Russian River Flood Control and Water Conservation Improvement District. Water from Lake Mendocino is used in Mendocino and Sonoma counties for irrigation, municipal and domestic water supply, recreation, and support of salmon and steelhead populations in the Russian River. Water leaving Lake Mendocino joins with the mainstem Russian River and flows approximately 96 miles to the Pacific Ocean near the town of Jenner. The Eel River and Russian River Watersheds are depicted on Map 2-3.

Recently, PG&E dam safety engineers determined that the seismic risk at Scott Dam is greater than previously understood. To reduce the potential seismic risk, by letter dated May 22, 2023[2], PG&E notified the FERC that they are indefinitely keeping the spillway gates at Scott Dam open so that water cannot be impounded above the spillway elevation, thereby reducing water storage

[1] Potter Valley Powerhouse to the ordinary high water mark of Lake Mendocino (Coyote Dam Spillway elevation at 764.8 feet above mean sea level).

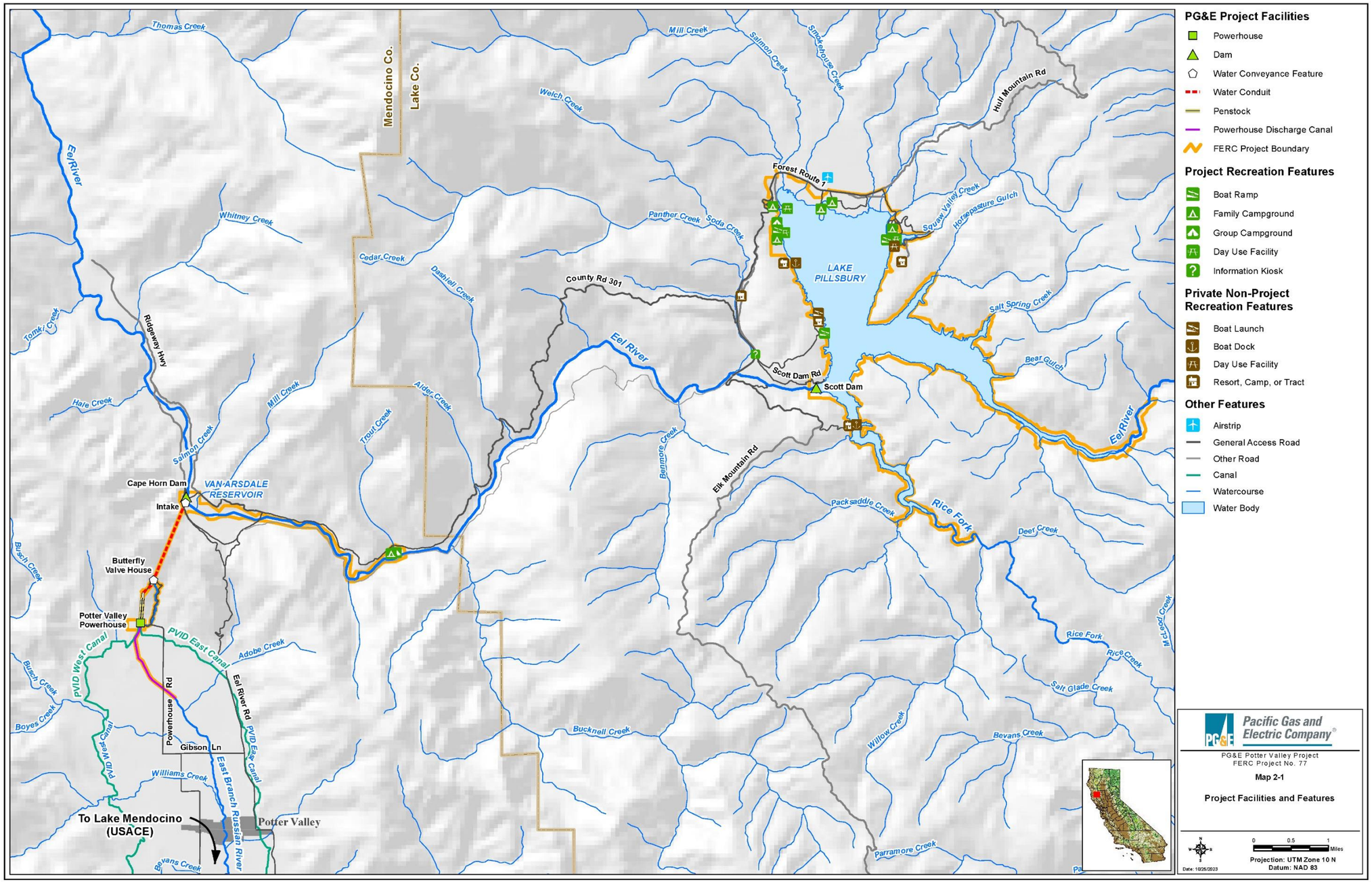
[2] FERC Accession No. 20230523-5020

capacity in Lake Pillsbury by approximately 20,000 ac-ft (PG&E 2023). In an April 12, 2023, letter, DSOD concurred with PG&E's proposed reservoir restriction (DSOD 2023). During a routine inspection in July 2021, PG&E discovered a transformer at its Potter Valley Powerhouse that did not meet current operating standards. The powerhouse has been offline since that time. Based on the new reservoir restriction, PG&E has no plans to replace the transformer and return the Potter Valley Powerhouse to service. Currently, PG&E is diverting water from the Eel River to meet minimum instream flow requirements in the East Branch Russian River and to meet water delivery contracts to the Potter Valley Irrigation District (PVID) at the tailrace of the Potter Valley Powerhouse.

2.3 Project History

The Eel Power and Irrigation Company commenced construction of the Cape Horn Diversion Dam, Intake, Tunnels, and the Potter Valley Powerhouse in 1905. In 1908, construction of the initial Project works was completed by the company which had been reorganized into the Snow Mountain Water and Power Company. In 1920, the Snow Mountain Water and Power Company applied to the USFS for a final power permit for the construction of Scott Dam. During the same year, construction of the dam began, and a request was made to transfer the application for a final power permit to the Federal Power Commission (predecessor to the current Federal Energy Regulatory Commission [FERC]). The construction of Scott Dam was completed the following year.

The Project was first licensed by the Federal Power Commission in 1922. The license was transferred to PG&E in 1930. The Project was relicensed by FERC in 1983. In 2004, FERC issued an Order Amending License (Order) for the Project which included a complex set of conditions to govern stream flows in both the Eel River and East Branch Russian River, as well as storage levels in Lake Pillsbury. Implementation of this Order resulted in increased flows in the Upper Eel River for the protection of salmon and steelhead populations, while reducing power generation output from the Project and the amount of water diverted to the East Branch Russian River. The license expired in 2022; the Project currently operates, and will continue to operate, under the annual license issued pursuant to 16 U.S.C. § 808(a)(1), which will renew automatically pursuant to the Commission's April 21, 2022 Notice of Authorization for Continued Project Operation until the surrender and decommissioning proceeding is concluded.



Map 2-1. Project Facilities and Features

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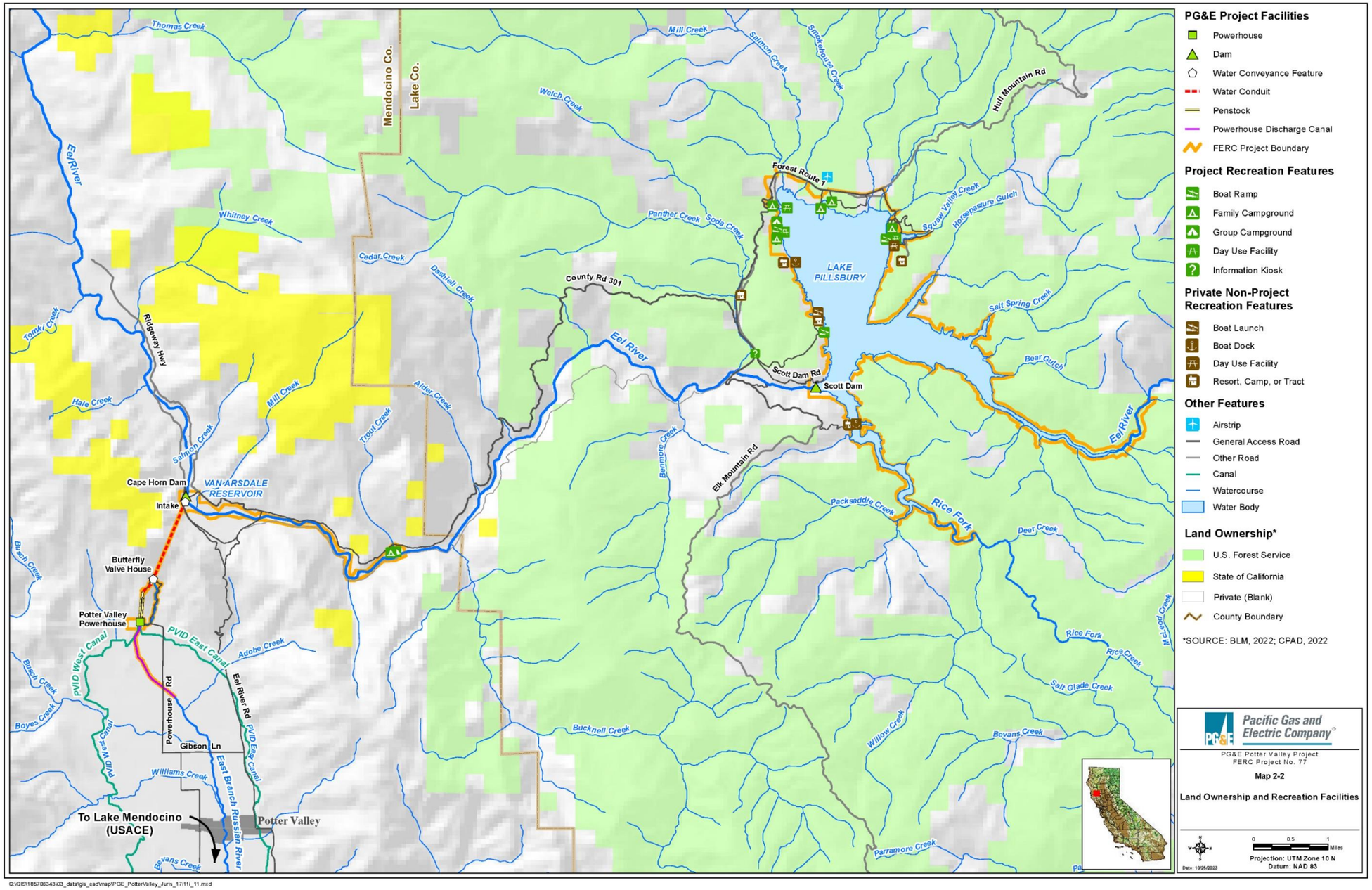

Map 2-2. Land Ownership and Recreation Facilities

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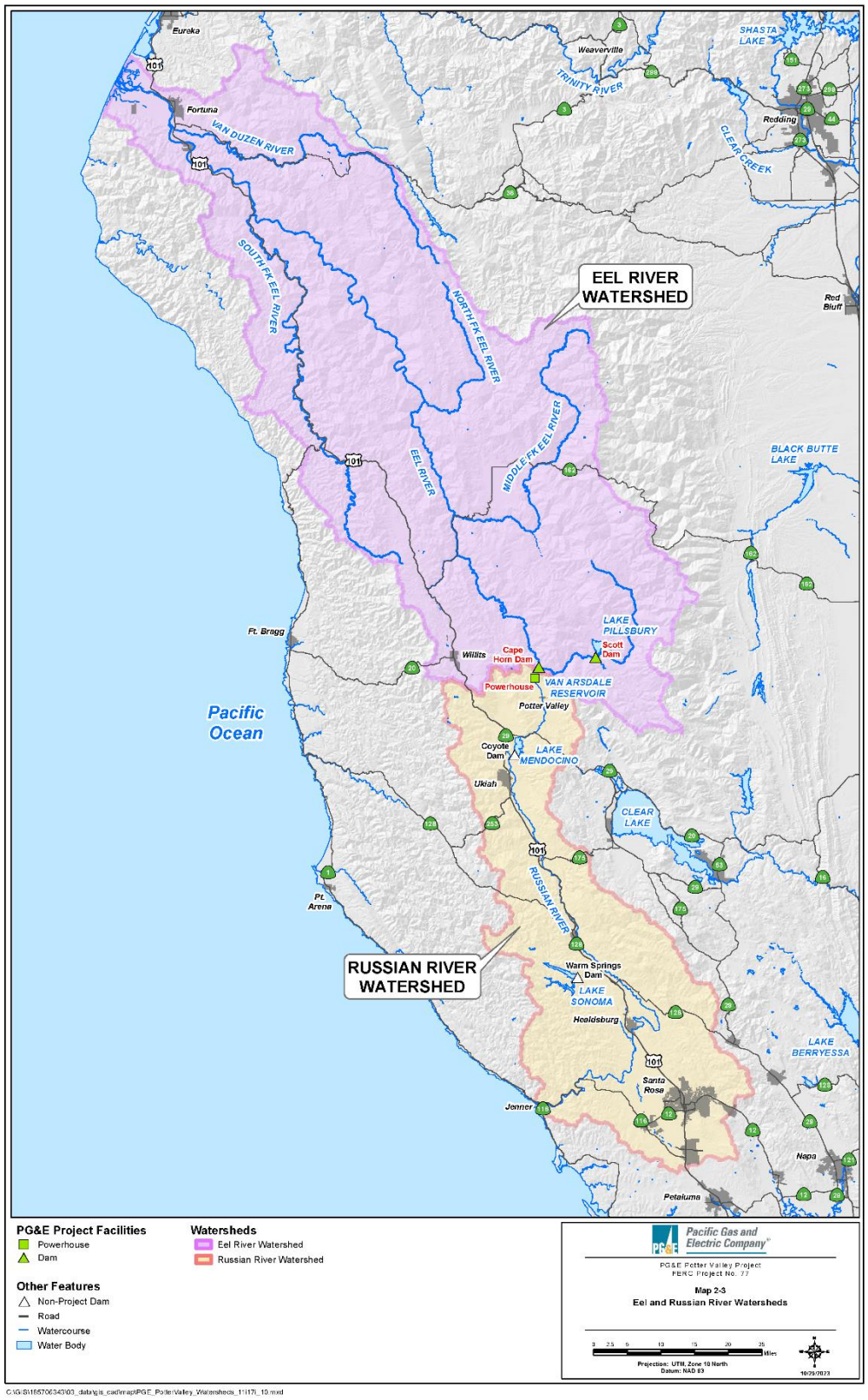

Map 2-3. Eel and Russian River Watersheds

2.4 Existing Project Facilities

This section describes Project facilities under FERC jurisdiction. A list of the Project facilities in the Scott Dam Area is provided in Table 2-1 and a list of the Project facilities in the Cape Horn Dam Area is provided in Table 2-2. Physical characteristics and facility specifications of primary Project facilities in the Scott Dam and Cape Horn Dam areas are provided in Table 2-3. Map 2-1 provides a geographic overview of the Project; Map 2-2 shows land ownership and recreation facilities; Map 2-3 provides an overview of the Eel River and Russian River Watersheds; and Maps 2-4 through 2-7 provide a detailed geographic depiction of Project facilities. Figure 2-1 includes a schematic showing piping details of Project facilities entering, within, and exiting the powerhouse.

Table 2-1. Project Facilities in the Scott Dam Area.

Project Facility/Feature
Dam and Associated Facility/Features
Scott Dam
Valve Control House
Reservoir
Lake Pillsbury (storage reservoir)
Reservoir Gage
E1—Lk Pillsbury NR Potter Valley CA (11470000)
River Gages
E2—Eel R BL Scott Dam NR Potter Valley CA (11470500)
Leakage Weirs and Piezometers and Associated Trail
Scott Dam Leakage Weirs
Scott Dam Piezometers
Scott Dam Piezometers and Leakage Weir Access Trail
Project Communication Line
Scott Dam Block Building Communication Line
Ancillary and Support Facilities
Scott Dam Block Building
Scott Dam Boat Barrier
Project Facility Access Roads
Gage E2 Access Rd
Scott Dam Rd
Upper Scott Dam Access Rd

Table 2-1. Project Facilities in the Scott Dam Area (continued)
Project Facility/Feature
Recreation Facilities and Access Roads
Family Campgrounds
Fuller Grove Campground
• Fuller Grove Campground Rd
Navy Campground
• Navy Campground Access Rd (18N50)
• Navy Campground Loop Rd
Oak Flat Campground
• Oak Flat Campground Rd
Pogie Point Campground
• Pogie Point Campground Loop Rd
• Pogie Point Campground and Day-Use Area Access Rd (18N75)
Sunset Point Campground
• Sunset Point Campground East Loop Rd
• Sunset Point Campground West Loop Rd
Trout Creek Campground
• Trout Creek Campground Loop Rd
Group Campgrounds
Fuller Grove Group Campground
• Fuller Grove Group Campground Access Rd
Trout Creek Group Campground
• Trout Creek Campground Rd
Day-Use Facilities
Eel River Visitor Information Kiosk
Fuller Grove Day-Use Area and Boat Launch
• Fuller Grove Day-Use Area and Boat Launch Access Rd
Pillsbury Pines Day-Use Area and Boat Launch
• Pillsbury Pines Day-Use Area and Boat Launch Access Rd
Pogie Point Day-Use Area
Lake Pillsbury Low Level Boat Launch

Table 2-2. Project Facilities in the Cape Horn Dam Area.

Project Facility/Feature
Dam and Associated Facility/Features
Cape Horn Dam
Cape Horn Dam Instream Flow Release
Reservoir
Van Arsdale Reservoir
Intake Structures
Van Arsdale Diversion Intake
Tunnels and Adits
Tunnel No. 1
Tunnel No. 2
Tunnel No. 1 Slide Gate and Adit
Tunnel No. 1 Gage Shaft
Conduits, Penstocks, Control and Valve Houses
Conduit No. 1 (Upper Wood Stave, Steel Pipe and Components)
Conduit No. 2 (Lower Wood Stave, Steel Pipe and Components)
Conduit No. 1, 72-inch Butterfly Valve House
Conduit No. 1 Standpipe and Surge Chamber Vent
Penstock No. 1
Penstock No. 2
Penstock Nos. 1 and 2, 60-inch Gate Valves (2)
Penstock Bypass Channel
Powerhouse Bypass System
Powerhouse, Switchyard, and Tailrace
Potter Valley Powerhouse
Potter Valley Powerhouse Switchyard
Potter Valley Powerhouse Tailrace, Radial Gate, and Venturi Flume
Potter Valley Powerhouse Discharge Canal
Diversion Gages
E5—Potter Valley Irrig CN E5 NR Potter Valley CA (11471105)
E6—Potter Valley Irrig CN E6 NR Potter Valley CA (11471106)
E16—Potter Valley PH Intake near Potter Valley CA (11471000)
River Gages
E11—Eel River at Van Arsdale Dam near Potter Valley CA (11471500)

Table 2-2. Project Facilities in the Cape Horn Dam Area (continued)
Project Facility/Feature
Leakage Weirs and Piezometers
Cape Horn Dam Leakage Weirs
Cape Horn Dam Piezometers
Fish Screen and Associated Facilities
Van Arsdale Fish Screen Facility
Van Arsdale Fish Screen Facility Back-up Generator Building
Van Arsdale Fish Screen Facility Motor Control Building
Van Arsdale Fish Return Channel
Storage Building
Fish Ladder and Associated Facilities
Cape Horn Dam Fish Ladder Inlet / Outlet
Cape Horn Dam Fish Ladder
Fish Attraction Facility
Cape Horn Dam Fish Ladder Rock Fall Fence
Cape Horn Dam Fish Ladder Intake / Outlet Debris Boom
Project Communication/Power Lines
Conduit No. 1, 72-inch Butterfly Valve House Communication Line
Cape Horn Dam Control Building Communication/Power Line
Fish Screen Facility Communication/Power Line
Tunnel No. 1 Slide Gate and Adit Communication/Power Line
Penstock Nos. 1 and 2, 60-inch Stop Valves Communication/Power Line
Helicopter Landing Sites
Potter Valley Powerhouse Helicopter Landing Site
Ancillary and Support Facilities
Potter Valley Powerhouse Operators Office
Potter Valley Powerhouse Maintenance Office
Potter Valley Powerhouse Operators Restrooms
Project Facility Access Roads
Cape Horn Dam East Access Rd
Intake Access Rd
Penstock, Pipeline and Butterfly Valve House Access Rd (Access for private landowner)
Powerhouse Main Access Rd
Project Facility Access Trails
Gage E11 Access Trail

Table 2-3. Project Facility Specifications.

Scott Dam Area (elevations are based on PG&E Datum, which equals NGVD 29 + 81.7 feet)	
Dam	
Scott Dam	
Dam Location	Eel River
Dam Type	Concrete, gravity
Dam Height and Length	130 feet high and 805 feet long
Spillway Crest Elevation	1,900 feet
Spillway Type	Ogee
Spillway Gates[1]	• 5 radial gates each 32 feet wide by 10 feet high • 26 steel slide gates each 10 feet high and varying width from 7.5 feet to 10.08 feet
Diversion/Outlet Tunnel	• Outlet Type/Capacity: 72-inch diameter, riveted-steel pipe (invert elevation 1,812 feet) • Controlled by a 42-inch Lauren-Johnson needle valve • Rated capacity: 400 cfs at reservoir elevation of 1,910 feet
Reservoir	
Lake Pillsbury	
Normal Maximum Water Surface Area	2,275 acres
Normal Maximum Water Surface Elevation	1,910 feet
Current Usable Storage Capacity	66,876 ac-ft
Cape Horn Dam Area (elevations are based on NGVD 29)	
Dam	
Cape Horn Dam	
Dam Location	Eel River
Dam Type	Earthfill and concrete, gravity
Dam Height and Length	Earthfill section: 60 feet high and 237 feet long Concrete, gravity section: 63 feet high and 283 feet long
Spillway Elevation	Earthfill section: 1,516.8 feet Concrete, gravity section: 1,490.3 feet
Spillway Type	Overflow
Spillway Gates	—
East and West Release Gates	Instream flow release

[1] In 2023, PG&E discontinued closing the gates on Scott Dam in the spring due to seismic concerns.

Table 2-3. Project Facility Specifications (continued)	
Fish Ladder	• Pool-and-weir ladder, with submerged orifices in upper ladder bays • 10-12 cfs capacity • Ladder attraction flows of ~100 cfs provided by weir across Eel River below Cape Horn Dam
Reservoir	
Van Arsdale Reservoir	
Normal Maximum Water Surface Area	106 acres
Normal Maximum Water Surface Elevation	1490.3 feet
Current Usable Storage Capacity	390 ac-ft
Diversion System	
Van Arsdale Intake	
Fish Screens	• Pair of inclined plane screens • 600 square feet of screen area for each screen • Designed to pass 240 cfs each
Archimedes Screw Pump	• 84 inches by 44 feet, 6 inches • Flow rate is approximately 4 cfs • Passes fish from screens to fish return channel
Fish Return Channel	• 214 feet, 11 inches long; 4 feet wide; 5 to 6 feet deep • Passes fish from Archimedes screw pump to fish return pipe
Fish Return Pipe	• 18-inch diameter; 416 feet long • Passes fish from fish return channel to fish ladder at Cape Horn Dam
Diversion Tunnel	72-inch diameter, 320 cfs capacity
Tunnel No. 1	
Overall Length	5,826 feet long
Section No. 1	205-foot-long, concrete-lined, modified, horseshoe-shaped section, 7 feet high by 6 feet wide
Section No. 2	5,453-foot-long, timber-lined, trapezoidal-shaped section, 7.16 feet high, with a bottom width of 6 feet and a top width of 5 feet
Section No. 3	129-foot-long, concrete-lined, circular section, 7.25 feet in diameter
Section No. 4	39-foot-long, concrete and steel-lined section, 7.25 feet in diameter
Control	6-foot by 6.5-foot slide gate is located between the horseshoe-shaped tunnel section and the timber-lined section

Table 2-3. Project Facility Specifications (continued)	
Conduit No. 1	
Overall Length	457 feet long
Section No. 1	A 50-foot-long "day lighted" steel pipe section containing a 72-inch butterfly valve and a sand trap/settling chamber
Section No. 2	367-foot-long, 7-foot-diameter wood stave conduit
Section No. 3	29-foot-long steel pipe, varying in diameter from 7 to 7.25 feet
Section No. 4	10-foot-long, 7.25-diameter steel pipe
Control	72-inch Penstock Butterfly Valve
Tunnel No. 2	
Overall Length	807 feet long
Section No. 1	78-foot-long, 7.25 feet in diameter concrete and steel-lined circular section
Section No. 2	729-foot long, 7 to 7.25 feet in diameter concrete-lined, circular section
Control	None
Conduit No. 2	
Overall Length	367 feet long
Section No. 1	8.1-foot steel pipe that tapers from 7.25 feet to 7 feet in diameter
Section No. 2	359-foot-long, 7-foot-diameter wood stave conduit
Control	Two 60-inch-diameter gate valves at the heads of Penstock No. 1 and No. 2
Powerhouse	
Penstock No. 1	
Length	1,793 feet long
Type	Riveted-steel pipe
Diameter	Varying from 62 inches at the gate valve to 48 inches at the powerhouse
Penstock No. 2	
Length	1,812 feet long
Type	Riveted-steel pipe
Diameter	Varying from 62 inches at the gate valve to 48 inches at the powerhouse

Table 2-3. Project Facility Specifications (continued)	
Unit 1	
First Date of Operation	2-9-1939
Installed Capacity, Generator	4,400 kW
Type of Turbine	Single horizontal reaction turbine
Horsepower	6,500
RPM	720
Minimum Hydraulic Capacity	45 cfs
Maximum Hydraulic Capacity	170 cfs
Unit 3	
First Date of Operation	3-1-1910
Installed Capacity, Generator	2,559 kW
Type of Turbine	Single horizontal reaction turbine
Horsepower	4,000
RPM	450
Minimum Hydraulic Capacity	25 cfs
Maximum Hydraulic Capacity	85 cfs
Unit 4	
First Date of Operation	9-15-1917
Installed Capacity, Generator	3,060 kW
Type of Turbine	Single horizontal reaction turbine
Horsepower	4,000
RPM	450
Minimum Hydraulic Capacity	25 cfs
Maximum Hydraulic Capacity	85 cfs
Overall Powerhouse	
Static Head[1]	475.5 feet
Total Maximum Flow	331 cfs
Total Prime Mover Capacity	14,500 hp
Total Generator Capacity	10,019 kW
Peak Output	9,200 kW
First Date of Operation[2]	4-1-1908

Notes: ac-ft = acre-feet
cfs = cubic feet per second
hp = horsepower
kW = kilowatts
RPM = rotations per minute

[1] Water surface at Van Arsdale Reservoir at spill crest elevation 1,490.3.
[2] Original Units Nos. 1 and 2 were replaced in 1939 as Unit No. 1.

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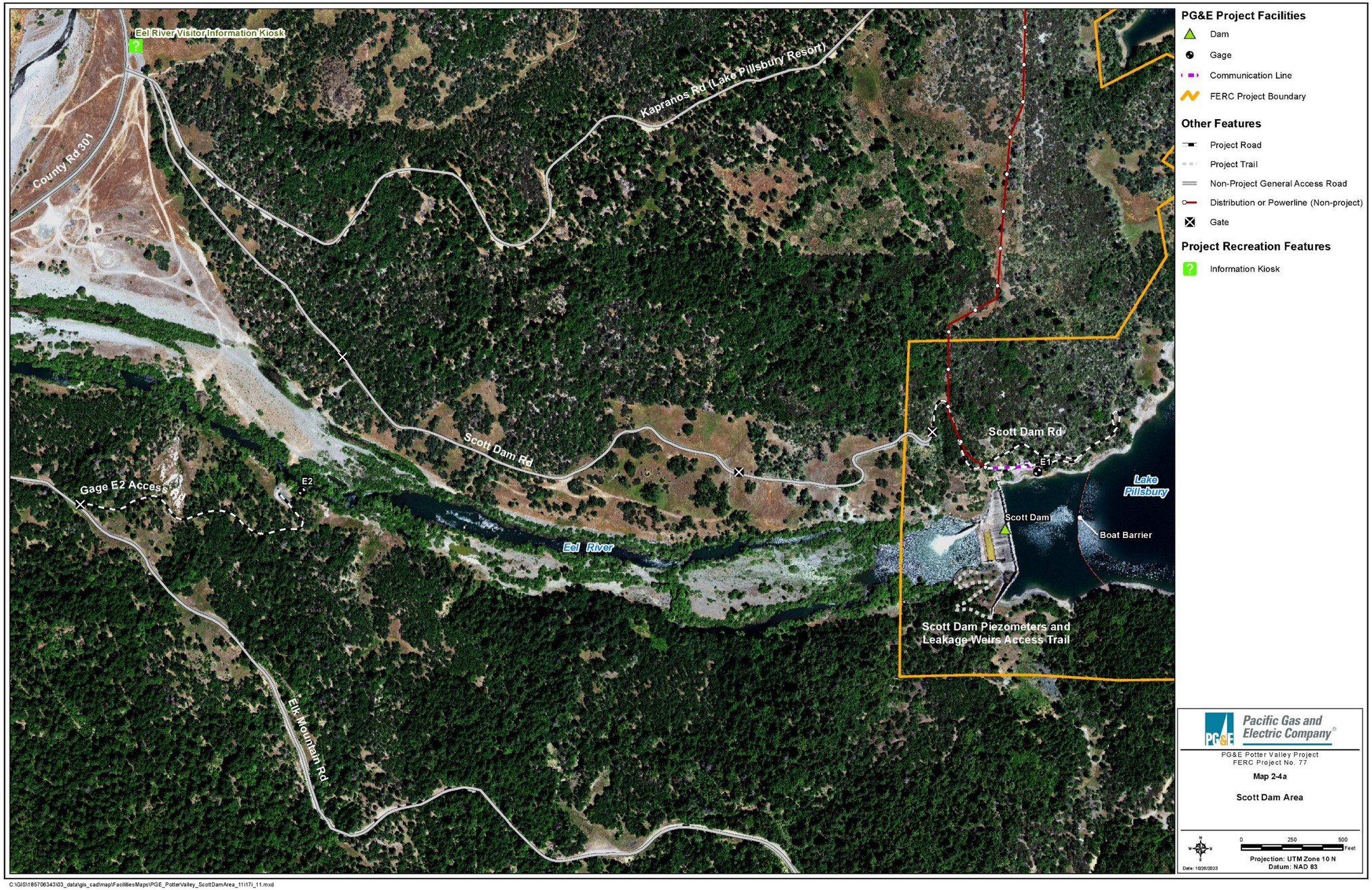

Map 2-4a. Scott Dam Area

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Map 2-4b. Scott Dam and Lake Pillsbury

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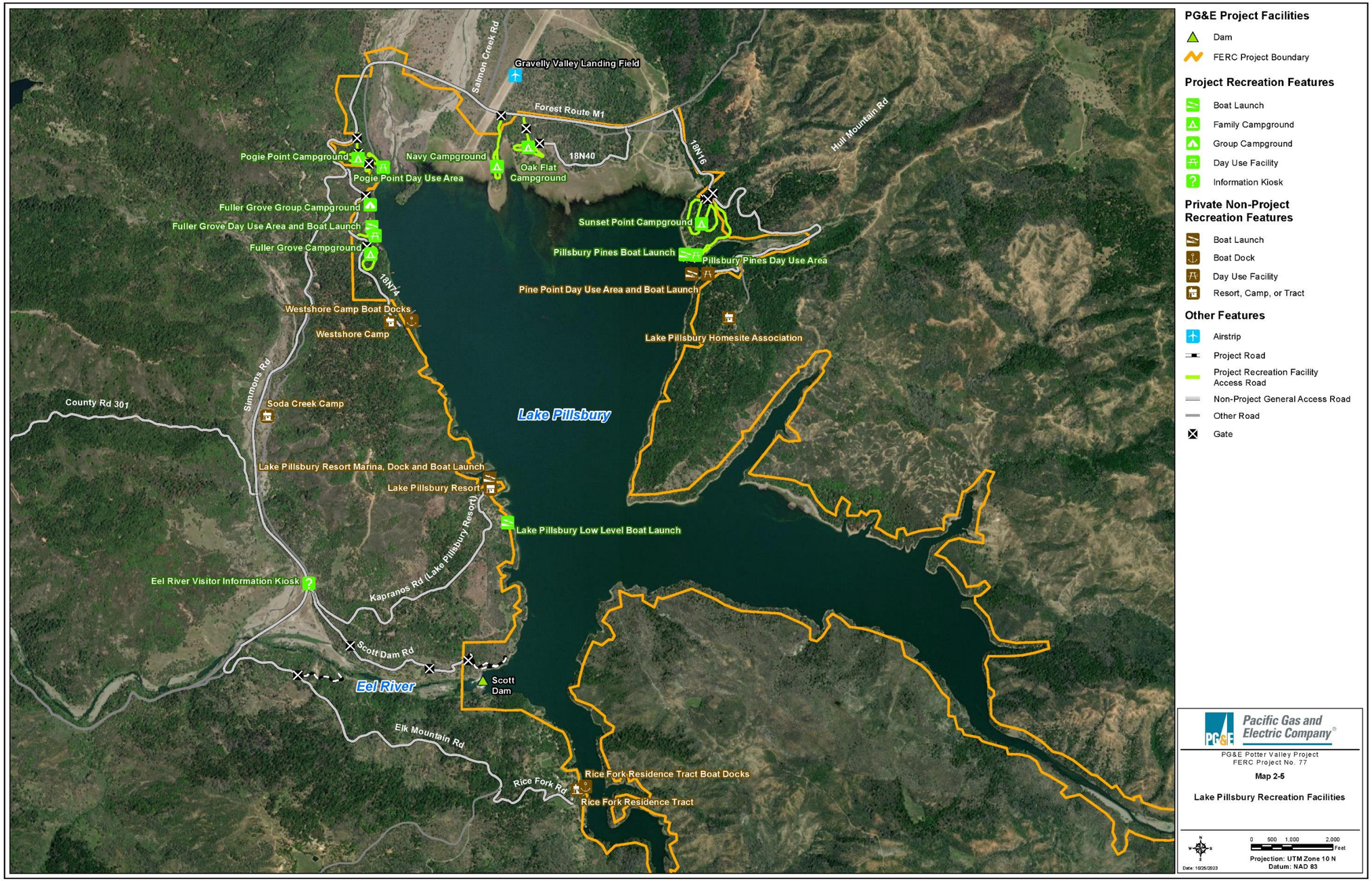

Map 2-5. Lake Pillsbury Recreation Facilities

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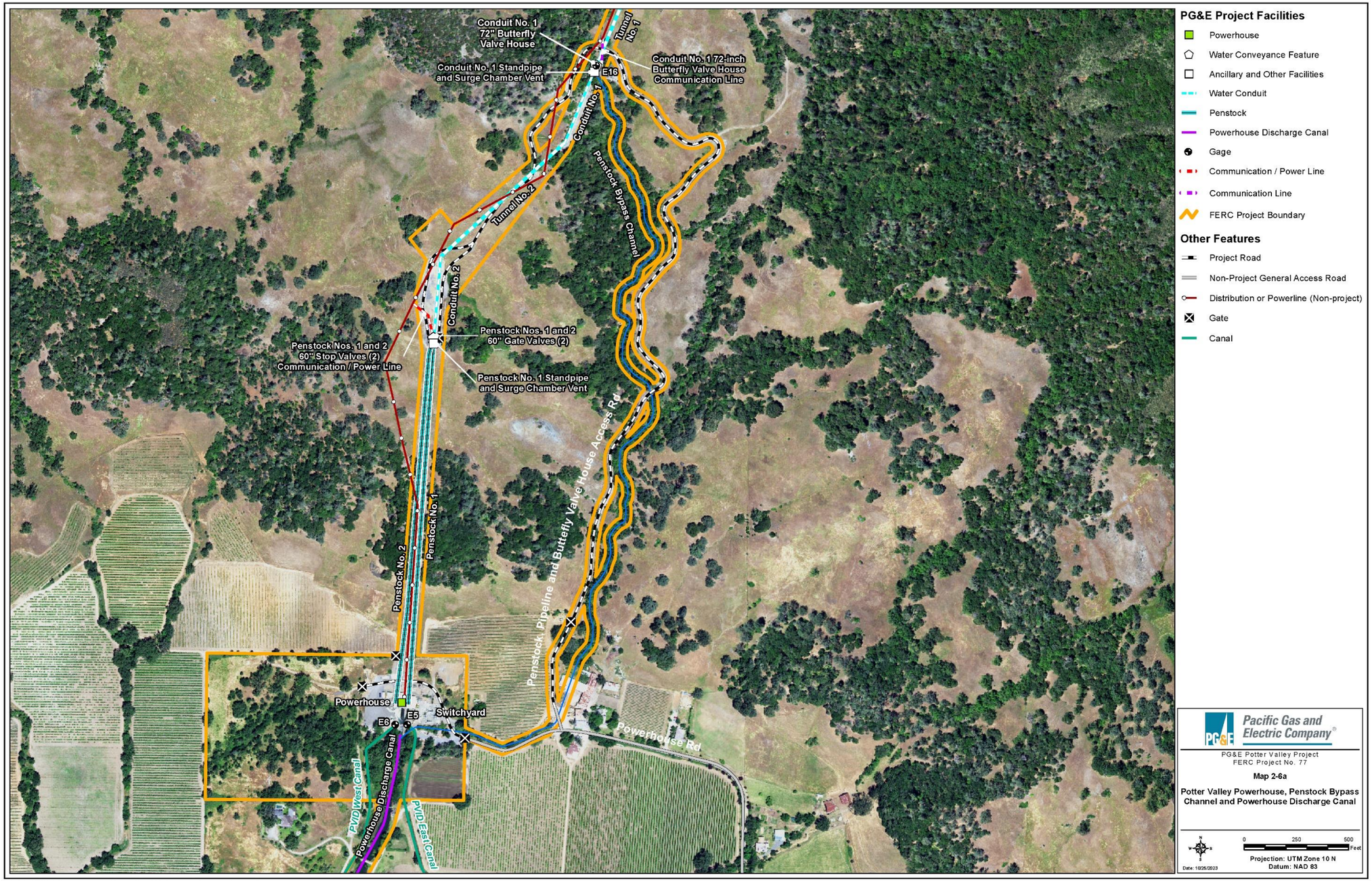

Map 2-6a. Potter Valley Powerhouse, Penstock Bypass Channel and Powerhouse Discharge Canal

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Map 2-6b. Potter Valley Powerhouse

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Map 2-7. Cape Horn Dam Area

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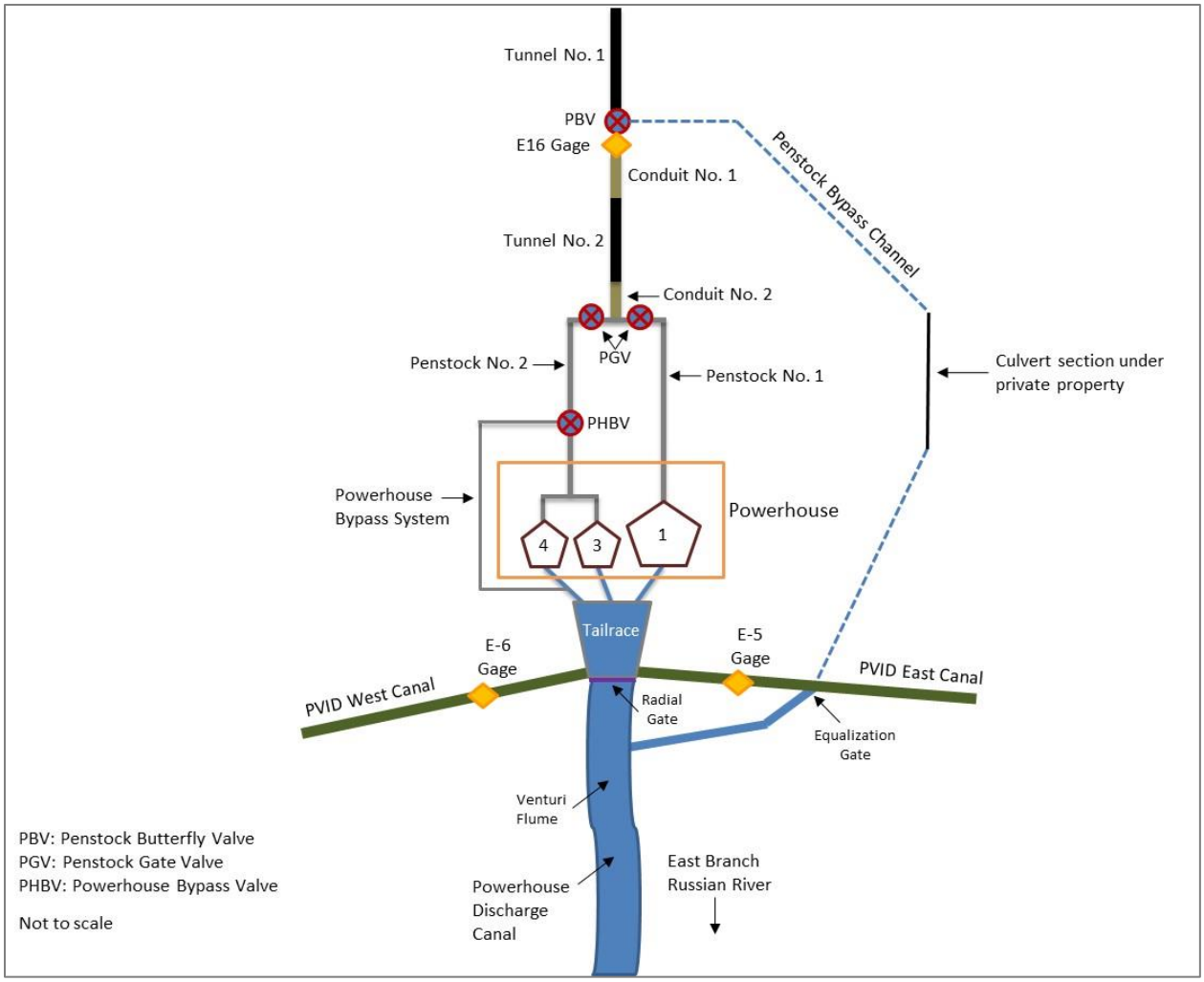

Figure 2-1. Potter Valley Powerhouse Schematic

2.4.1 Scott Dam Area

This section describes the Project facilities and features located in the Scott Dam Area. Note that Scott Dam Area elevations cited herein are based on PG&E's datum, which equals National Geodetic Vertical Datum of 1929 (NGVD29) + 81.7 feet.

2.4.1.1 Scott Dam

Scott Dam is a concrete, gravity-type, ogee-shaped structure having a maximum height of 130 feet and a total length of 805 feet. The ogee crest (spill crest), which is at an elevation of 1900 feet, is surmounted by five radial gates, each 32 feet wide by 10 feet high, and 26 steel slide gates, each 10 feet high and varying in width from 7.5 feet to 10.08 feet. The gates are manually operated with the exception of Gate 13 which is automated. Storage releases are made through a 72-inch diameter, riveted-steel outlet pipe passing through the dam at invert elevation 1812 feet, which is controlled by a 42-inch Lauren-Johnson needle valve. The needle valve is remotely operated.

2.4.1.2 Lake Pillsbury

Lake Pillsbury, formed by the construction of Scott Dam on the Eel River, has a surface area of approximately 2,275 acres at the normal maximum water surface elevation of 1910 feet and a current storage capacity of 76,876 acre-feet (ac-ft) (PG&E 2017). Due to concerns of bank instability in the reservoir and the potential for sloughing material to block the outlet needle valve or be released downstream creating high turbidity and streambed sedimentation, the reservoir is operated to maintain a minimum reservoir storage of at least 10,000 ac-ft, resulting in a normal usable storage of 66,876 ac-ft.

2.4.2 Cape Horn Dam Area

This section describes the Project facilities and features in the Cape Horn Dam Area. Note that all Cape Horn Dam Area elevations cited herein are based NAVD88 datum.

2.4.2.1 Cape Horn Dam

Cape Horn Dam is 520 feet long and consists of an earthfill section and a concrete, gravity overflow spillway section. The earthfill section on the right side of the dam is approximately 237 feet long and has a 10-foot-wide crest at elevation 1,516.8 feet. The maximum height of the embankment is roughly 60 feet at the concrete retaining wall on the left side of the embankment. The embankment is comprised of earthfill with a concrete corewall.

The concrete, gravity overflow spillway section forms the left side of the dam and has a maximum height of 63 feet. The spillway crest is at elevation 1,490.3 feet and is 283 feet long.

There is a 5-foot-diameter outlet through the spillway structure which was abandoned in place in 1987 due to an accumulation of sediment preventing its operation and the construction of a weir associated with fish ladder improvements that flooded the downstream side of the outlet. Currently, water passing downstream of the dam flows through the east and west release gates at the center of the dam, through the fish ladder on river left, or over the length of the spillway crest.

A pool-and-weir-type fish ladder provides fish passage over Cape Horn Dam allowing fish access to the Eel River and its tributaries between Cape Horn and Scott Dams. The fish ladder is 434 feet long and rises a vertical distance of 40 feet. It is comprised of 49 pools, each measuring 8 feet long, 4 to 10 feet wide, and 3 to 4 feet deep. The path of the ladder is roughly u-shaped, with the entrance located approximately 80 feet downstream from the toe of the dam and the exit at the west end of the dam crest. The ladder passes through the Van Arsdale Fisheries Station. Downstream migrant fish screened at the Van Arsdale Intake, located approximately 400 feet upstream of Cape Horn Dam, are introduced into the fish ladder just upstream of the counting station. A corrugated pipe along the ladder provides alternative upstream passage for adult lamprey.

2.4.2.2 Van Arsdale Reservoir

Van Arsdale Reservoir was formed by the construction of Cape Horn Dam on the Eel River. The reservoir has a surface area of approximately 65 acres at the normal maximum water surface elevation of 1,490.3 feet (USGS datum). The original storage capacity of Van Arsdale Reservoir was more than 1,100 ac-ft when constructed in 1907. However, accumulation of sediment over time

has resulted in significant loss of reservoir capacity. Based on the most recent bathymetric and topographic surveys, the current reservoir capacity is less than 390 ac-ft (GEI Consultants 2020).

2.4.2.3 Van Arsdale Intake

Van Arsdale Intake diverts water upstream of Cape Horn Dam and conveys it to the Potter Valley Powerhouse, approximately 9,257 feet south. The intake structure, located on the southwest bank of Van Arsdale Reservoir, is approximately 400 feet upstream from Cape Horn Dam. At the entrance to the diversion tunnel, the intake consists of two fish screen bays, an inclined plane screen in each bay, an Archimedes screw pump, and a fish return channel.

The fish return channel leads to a secondary fish screen which reduces the fish return flow from 4 cubic feet per second (cfs) to 2 cfs. This reduced flow carries screened fish and debris through a series of fish return pipes to a half-round ogee spillway and a baffled flume, where it discharges into the fish ladder just upstream of CDFW's Van Arsdale Fisheries Station.

Each of the inclined plane fish screens is approximately 82 feet long and 8 feet wide and is comprised of wedge wire screening material with 1/8-inch slotted openings. The screens are cleaned by an automated compressed air sparging system that blows debris off the screens from below. The debris is then carried by water flowing over the top of the screens to the fish bypass system. Each screen is designed to pass 240 cfs with an approach velocity of 0.4 foot per second (i.e., 600 square feet of screen). However, the screens have been derated to 50% capacity due to current mechanical limitations, and so only 240 cfs total can be diverted through the screens.

2.4.2.4 Tunnels/Conduits

A trans-basin diversion system comprised of tunnels, steel pipes, and wood stave conduits passes through two ridges transporting water from the Van Arsdale Intake to Potter Valley Powerhouse. The first ridge is crossed by a 5,826-foot-long underground tunnel (Tunnel No. 1). The second ridge is crossed by an 807-foot-long underground tunnel (Tunnel No. 2). Tunnel No. 1 and Tunnel No. 2 are connected by an approximately 457-foot-long aboveground conduit which crosses the valley between the two ridges (Conduit No. 1). A second aboveground conduit section (Conduit No. 2), approximately 367 feet in length, connects the downstream end of Tunnel No. 2 to Penstock No. 1 (1,793 feet long) and Penstock No. 2 (1,812 feet long).

Tunnel No. 1

Tunnel No. 1 is 5,826 feet long and comprised of the following sections:

- A 205-foot-long, concrete-lined, modified, horseshoe-shaped section, 7 feet high by 6 feet wide;
- A 5,453-foot-long, timber-lined, trapezoidal-shaped section, 7.16 feet high, with a bottom width of 6 feet and a top width of 5 feet;
- A 129-foot-long, concrete-lined, circular section, 7.25 feet in diameter; and
- A 39-foot-long, concrete and steel-lined section, 7.25 feet in diameter.
- A 6-foot by 6.5-foot slide gate is located between the horseshoe-shaped tunnel section and the timber-lined section.

Conduit No. 1

Conduit No. 1 is a 457-foot-long section of conduit and valve which connects Tunnel No. 1 to Tunnel No. 2 and is comprised of the following sections:

- A 50-foot-long "day lighted" steel pipe section containing a 72-inch butterfly valve and a sandtrap/settling chamber;
- A 367-foot-long, 7-foot diameter wood stave conduit;
- A 29-foot-long steel pipe, varying in diameter from 7 feet to 7.25 feet; and
- A 10-foot-long, 7.25 feet diameter steel pipe.

Tunnel No. 2

Tunnel No. 2 is 807-feet long and comprised of the following sections:

- A 78-foot-long, 7.25 feet in diameter concrete and steel-lined circular section; and
- A 729-foot long, 7 to 7.25 feet in diameter concrete-lined, circular section.

Conduit No. 2

Conduit No. 2 is 367 feet long and connects the downstream end of Tunnel No. 2 to the penstocks. Conduit No. 2 is comprised of the following sections:

- An 8.1-foot steel pipe that tapers from 7.25 feet to 7 feet in diameter; and
- A 359-foot-long, 7-foot-diameter wood stave conduit.

The wood stave portion of Conduit No. 2 bifurcates into two 62-inch-diameter pipes that lead to two 60-inch-diameter gate valves at the heads of Penstock No. 1 and No. 2.

2.4.2.5 Penstocks and Penstock Bypass

Penstock No. 1

Penstock No. 1 is a 1,793-foot-long, riveted-steel pipe varying in diameter from 62 inches at the gate valve to 48 inches at the Potter Valley Powerhouse. Penstock No. 1 supplies water to Unit No. 1.

Penstock No. 2

Penstock No. 2 is a 1,812-foot-long, riveted-steel pipe varying in diameter from 62 inches at the gate valve to 48 inches at the Potter Valley Powerhouse. A 30-inch diameter wye branch from Penstock No. 2 supplies water to Unit No. 3 and Unit No. 4.

Penstock Bypass Channel and Powerhouse Bypass System

A butterfly valve house is located at the junction of Tunnel No. 1 and Conduit No. 1. Beginning near the butterfly valve house and terminating in the discharge canal downstream of the powerhouse, a seasonal creek is used as a penstock bypass channel to maintain flows in the East Branch Russian River during powerhouse outages that include dewatering of the entire penstock system. The capacity of the penstock bypass channel is approximately 25 cfs.

PG&E constructed a powerhouse bypass system in November 2009 with a capacity of 140 cfs. This is a fully automated system that is used to maintain required flow releases through the powerhouse as measured at gage E-16. The powerhouse bypass system can only be used when the penstock is in service (the limited-capacity penstock bypass channel is still used when the penstock is taken out of service).

2.4.2.6 Powerhouse, Switchyard, and Tailrace

Potter Valley Powerhouse

The 9.2 MW Potter Valley Powerhouse has three generating units. Water surface at Van Arsdale Reservoir at spill crest elevation (1,490.3 feet), yields a static powerhouse head equal to 475.5 feet. The powerhouse is a steel-frame structure approximately 101 feet long by 53 feet wide.

The three generating units are Francis turbines (PG&E 1994) and are further described below.

- Unit No. 1[1] is a 6,500-horsepower, single horizontal reaction turbine operating at 720 revolutions per minute (RPM) that is directly connected to a 4,400 kilowatt (kW) generator rated at 5,500 kilovolt-amperes (kVA).
- Unit 3 is a 4,000-horsepower, single horizontal reaction turbine operating at 450 RPM that is directly connected to a 2,559 kW generator rated at 3,187 kVA.
- Unit 4 is a 4,000-horsepower, single horizontal reaction turbine operating at 450 RPM that is directly connected to a 3,060 kW generator rated at 3,400 kVA.

Potter Valley Switchyard

The Potter Valley Switchyard, located adjacent to the powerhouse, contains a main transformer bank with a total capacity of 12,000 kVA and steps up the powerhouse output from 2.4 kilovolts (kV) to 60 kV. The bank consists of four 4,000-kVA, single-phase, 60-cycle, air-cooled, outdoor-type transformers with one used as a spare. One station service transformer bank provides station light and power to the powerhouse. Three transformer banks (one is a back-up) and related facilities associated with PG&E's 12 kV distribution system, are non-Project.[2]

Three 60 kV SF6 gas circuit breakers provide direct connection into PG&E's transmission system at the powerhouse. Disconnect and bypass switches provide maintenance of the SF6 gas circuit breakers.

[1] Original Units Nos. 1 and 2 were replaced in 1939 as Unit No. 1.

[2] Transmission lines are not part of the Project. Power is fed directly to PG&E's interconnected transmission system which passes through the powerhouse switchyard.

Potter Valley Tailrace

The three generating units discharge water into the Potter Valley Powerhouse Tailrace. The tailrace is comprised of three individual concrete channels which join together into a common channel approximately 60 feet downstream from the powerhouse. This common channel continues another 25 feet to the 12-foot by 6-foot tailrace radial gate, and forms the head works for the PVID East and West canals. Water not diverted to the PVID canals flows into a 60-foot-long Venturi flume which discharges into the 6,325-foot-long Powerhouse Discharge Canal. Water from the Powerhouse Discharge Canal flows into the East Branch Russian River.

2.4.3 Power Lines and Communication Lines

There are six Project communication and power lines. In general, these lines provide communication and power to Project valve houses, slide gates, ancillary facilities (control buildings), and to the Van Arsdale Fisheries Station facilities (see Tables 2-1 and 2-2).

2.4.4 Gages, Weirs, and Piezometers

PG&E currently maintains a network of gaging stations that include one gage that measures reservoir elevation at Lake Pillsbury, three gages that measure diversion flows, two calculated diversion gages, and two gages that measure river flows below Scott Dam and Cape Horn Dam. In addition, PG&E maintains leakage weirs and piezometers[1] at Cape Horn Dam and Scott Dam. Project gages names and purpose are summarized on Table 2-4.

Table 2-4. Project Gages

PG&E Name	USGS No.	USGS Name	Purpose
Scott Valley Dam Area			
Reservoir Gage			
E1	11470000	Lk Pillsbury NR Potter Valley CA	Measures Lake Pillsbury reservoir elevation
River Gage			
E2	11470500	Eel R BL Scott Dam NR Potter Valley CA	Measures flow in the Eel River downstream of Scott Dam
Cape Horn Dam Area			
Diversion Gages			
E5	11471105	Potter Valley Irrig CN E5 NR Potter Valley CA	Measures diversion to the PVID East Canal
E6	11471106	Potter Valley Irrig CN E6 NR Potter Valley CA	Measures diversion to the PVID West Canal
E16	11471000	Potter Valley PH Intake near Potter Valley CA	Meter at the Penstock No. 1 Butterfly Valve House measures flows from the Eel River to the Potter Valley Powerhouse

[1] Pipe set vertically in the ground that is perforated at the end and is used to monitor groundwater level.

Table 2-4. Project Gages (continued)			
PG&E Name	**USGS No.**	**USGS Name**	**Purpose**
Calculated Diversion Gages			
EC6	11471100	Potter Valley Irrig CN 5+6 NR Potter Valley CA	Calculates total deliveries to PVID (EC6 = E5 + E6)
E7	11471099	Potter Valley PH (TR only) NR Potter Valley CA	Calculates flows from the Potter Valley Powerhouse to the East Branch Russian River (E7 = E16 - (E5 + E6))
River Gage			
E11	11471500	Eel R Van Arsdale Dam NR Potter Valley CA	Measures flow in the Eel River downstream of Cape Horn Dam

Notes: PVID = Potter Valley Irrigation District
USGS = United States Geological Survey

2.4.5 Ancillary and Support Facilities

Project ancillary and support facilities consist of the operator's office, maintenance office, and restrooms at Potter Valley Powerhouse; storage and control buildings at Cape Horn Dam; Cape Horn Dam Fish Ladder rock fall fence and debris booms; Scott Dam block building (houses the generator, office and control room); and Lake Pillsbury boat barrier. Ancillary and support facilities in the Scott Dam and Cape Horn Dam areas are summarized on Tables 2-1 and 2-2, respectively.

2.4.6 Project Access Roads and Trails

Various roads and trails used almost exclusively by PG&E for routine operation and maintenance of the Project are referred to as Project roads and trails. The Project roads and trails associated with the Potter Valley Project are identified in Tables 2-1 and 2-5. These tables also identify Project roads and trails used to access Project recreation facilities. County and USFS roads open to the public with multiple uses are not designated as Project roads.

Table 2-5. Project Roads and Trails

Project Roads and Trails	Approximate Length (feet)
Scott Dam Area	
Project Facility Access Roads	
Scott Dam Rd	1,513
Upper Scott Dam Access Rd	416
Gage E2 Access Rd	1,474
Project Facility Access Trails	
Scott Dam Piezometers and Leakage Weirs Access Trail	601
Recreation Facility Access Roads	
Fuller Grove Campground Rd	1,656

Table 2-5. Project Roads and Trails (continued)	
Project Roads and Trails	**Approximate Length (feet)**
Fuller Grove Day-Use Area and Boat Launch Access Rd	588
Fuller Grove Group Campground Access Rd	488
Navy Campground Access Rd (18N50)	887
Navy Campground Loop Rd	1,482
Oak Flat Campground Rd	1,577
Pillsbury Pines Day-Use Area and Boat Launch Access Rd	2,196
Pogie Point Campground and Day-Use Area Access Rd (18N75)	1,543
Pogie Point Campground Loop Rd	1,759
Sunset Point Campground East Loop Rd	1,727
Sunset Point Campground West Loop Rd	2,331
Trout Creek Campground Loop Rd	405
Trout Creek Campground Rd	1,419
Cape Horn Dam Area	
Cape Horn Dam East Access Rd	970
Intake Access Rd	496
Penstock, Pipeline and Butterfly Valve House Access Rd	6,175
Powerhouse Main Access Rd	648
Project Facility Access Trails	
Gage E11 Access Trail	166

2.4.7 Project Recreation Facilities

A variety of developed Project recreation facilities are located in the immediate vicinity of the Project. A list of these Project recreation facilities is included in Table 2-1. The locations of these recreation facilities are shown on Map 2-1 and Map 2-5. The developed Project recreation facilities include family campgrounds, group campgrounds, and day-use facilities that are open to the public.

Five family campgrounds and one group campground are located along the shoreline of Lake Pillsbury (Map 2-5). In addition, one campground with both family and group capacity is located along the Eel River upstream of Van Arsdale Reservoir (Map 2-1). Developed day-use facilities in the vicinity of Lake Pillsbury include a visitor information kiosk, three day-use areas, three boat launches, and associated parking and picnic areas.

A variety of non-Project private recreation facilities, including recreational resorts and private camps, and private residence tracts are also located around Lake Pillsbury and shown on Map 2-5. With the exception of Westshore Camp, all of the private recreation facilities in the vicinity of Lake Pillsbury are located on NFSL and therefore operated under long-term lease agreements with the USFS. The Westshore Camp is located on PG&E land and operated by the Westshore Campers

Association under a long-term lease agreement with PG&E. The owners of the private recreation facilities around Lake Pillsbury maintain boat docks and/or launches along the shoreline. These boat docks and launches are located within the FERC Project boundary, on land owned by PG&E, and are therefore operated under long-term agreements with PG&E.

2.5 Existing Project Operations

The Project is operated in compliance with existing regulatory requirements, agreements, and water rights to generate power and deliver consumptive water to local water users. The following sections summarize the regulatory requirements and water rights associated with the Project.

2.5.1 Regulatory Requirements

Project operations are regulated by requirements contained in: (1) the existing 1983 FERC license (FERC 1983); (2) the 2004 license amendment (FERC 2004), which incorporated the terms of NMFS' RPA (NMFS 2002); and (3) a 2007 operational "reinterpretation" of the terms of the 2002 RPA. The Project is further limited by PG&E's existing water rights and water supply agreement with PVID.

2.5.1.1 FERC License

The original license for the Potter Valley Project was issued effective April 15, 1922, and expired on April 14, 1972. From 1972 to 1983, the Project operated on annual licenses during the extended relicensing period. FERC issued a new license for the Project in 1983, which was amended in January 2004. The amended license expired on April 14, 2022. The Project is currently operating annual licenses issued by FERC.

Over the years, FERC has additionally issued a variety of administrative orders associated with the license, which have included, for example, approval of reports, plans, and design drawings; extension of time to complete various actions; and approval of temporary modifications to the flow regime. Table 2-6 provides a summary of the License Articles. Refer to the License Order for a complete description of each License Article.

Table 2-6. FERC License Articles

License Article	Summary of License Articles
Article 1	The Project is subject to the provisions, terms, and conditions of the license.
Article 2	No substantial changes may be made in the plans, maps, specifications, and statements in the exhibits until approved by FERC.
Article 3	The Project will be in substantial conformity with the approved exhibits.
Article 4	The Project is subject to inspection by FERC's regional engineer.
Article 5	Requires the Licensee to acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for Project construction, maintenance, and operation.
Article 6	In the event the Project is taken over by the United States upon termination or transfer of the license, Licensee will be responsible for and will make good any defect of title to or of right of occupancy, which is necessary for Project maintenance and operation.
Article 7	The Commission will determine the actual original cost of the Project and any addition thereto.

Table 2-6. FERC License Articles (continued)	
License Article	**Summary of License Articles**
Article 8	Requires the Licensee to install and monitor stream gages and gaging stations.
Article 9	Requires the Licensee to install additional capacity or make other changes as directed by FERC.
Article 10	Requires coordination of Project with other power systems in the interest of power and other beneficial public uses of the water.
Article 11	Whenever the Licensee is directly benefited by the construction work of another Licensee, on a storage reservoir or other headwater improvement, the Licensee will reimburse the owner of the headwater improvement.
Article 12	The United States retains and safeguards the right to use water in such amount as may be necessary for the purposes of navigation; and operations controlled for the protection of life, health, and property and in the interest of conservation and utilization for power purposes and other beneficial public uses.
Article 13	Requires the Licensee to permit reasonable use of reservoir or other Project properties as may be ordered by FERC in the interest of comprehensive development of the waterway.
Article 14	Requires the Licensee to avoid interference between Project transmission lines or other Project facilities and any other communication facilities installed before or after construction.
Article 15	Requires the Licensee to construct, maintain, and operate protective devices in the interest of fish and wildlife resources, as ordered by FERC, or as recommended by other Federal or State agency after an opportunity for a hearing.
Article 16	Requires the Licensee to permit the United States to use, free of cost, Project works or lands to construct fish and wildlife facilities.
Article 17	Requires the Licensee to construct, maintain, and operate reasonable recreational facilities as directed by FERC, or as recommended by other Federal or State agency after an opportunity for a hearing.
Article 18	Requires the Licensee to allow the public free access, to a reasonable extent (safety considerations), to Project waters and adjacent Project lands owned by the Licensee.
Article 19	Requires the Licensee to take reasonable measures to prevent soil erosion on land adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution resulting from Project construction, operation, or maintenance.
Article 20	Requires the Licensee to clear and keep clear lands along open conduits, and all trees along the periphery of reservoirs that may die during Project operation will be removed.
Article 21	Requires the Licensee only conduct dredge and fill activities in association with work specifically authorized under the license; during maintenance of the Project; or after obtaining FERC approval.
Article 22	Requires the Licensee to convey to the United States, free of cost, lands and rights-of-way required to construct, complete, or improve navigation facilities in connection with the Project.
Article 23	Requires that operation of any navigation facilities constructed in connection with the Project are controlled by reasonable rules and regulations in the interest of navigation.
Article 24	Requires the Licensee provide power, free of cost, to the United States for the operation and maintenance of navigation facilities in the vicinity of the Project.
Article 25	Requires the Licensee construct, maintain, and operate lights and other signals for the protection of navigation.

Table 2-6. FERC License Articles (continued)	
License Article	**Summary of License Articles**
Article 26	Requires payment by Licensee for timber cut, used, or destroyed in the construction and maintenance of the Project on lands of the United States.
Article 27	Requires the Licensee to prevent, control, and suppress fires on Project lands.
Article 28	Licensee may not object to or prevent use of water for fire suppression.
Article 29	Requires the Licensee to be liable for destruction of any structures or property of the United States during Project construction, maintenance, or operation.
Article 30	Requires Licensee to permit any agency of the United States, without charge, to construct or permit conduits, chutes, ditches, railroads, roads, trails, telephone and power lines, and other means of transportation and communication not inconsistent with the Project license.
Article 31	Requires state or federal jurisdictional approval over the location and standards of roads and trails; and other uses of land, including quarries, borrow pits, and spoil disposal areas during construction and maintenance.
Article 32	Requires Licensee to minimize interference with transmission, telegraph, telephone, etc., wires during construction and maintenance activities.
Article 33	Requires Licensee to clear and maintain transmission rights-of-way.
Article 34	Requires Licensee to cooperate with the disposal by the United States of mineral and vegetative materials, under the Act of July 31, 1947.
Article 35	Requires Licensee to maintain and operate the Project in good faith and comply with terms of the license and, if not, FERC will consider the Licensee's intent to surrender and terminate the license.
Article 36	Right of the Licensee to use or occupy waters or lands of the United States for the purpose of maintaining the Project will cease at the end of the license period, unless the Licensee obtains a new license, or an annual license is issued.
Article 37	Terms and conditions in the license will not be construed as impairing any terms and conditions of the Federal Power Act.
Article 38	Requires the Licensee maintain identified flow releases from the Project for the protection and maintenance of fishery resources in the Eel River and the East Branch Russian River. [deleted]
Article 39	Requires the Licensee to develop a study plan to determine the effects of the flow release schedule provided for in Article 38 on the salmonid fishery resources of the Upper Eel River and the East Branch Russian River. [deleted]
Article 40	Requires the Licensee file with FERC functional design drawings of the modifications to the existing upstream fish passage facility at Cape Horn Dam, including a construction schedule and cost estimate.
Article 41	Requires the Licensee conduct a study to determine measures needed at Scott Dam to provide a temperature regime downstream needed to facilitate the timely migration of juvenile salmonids from the Upper Eel River.
Article 42	Requires the Licensee, prior to implementation of any construction projects, to consult with the California State Historic Preservation Officer (SHPO) to develop and implement a study for the identification and protection of cultural resources that may be affected by operation and maintenance of the Project.
Article 43	Requires the Licensee maintain Lake Pillsbury's surface elevation at the highest, most practicable level, commensurate with other Project purposes during the summer recreation season. [deleted]

Table 2-6. FERC License Articles (continued)	
License Article	**Summary of License Articles**
Article 44	Requires Licensee to file amended Exhibit K and Exhibit R-2 drawings for FERC approval.
Article 45	Requires Licensee to submit stability analysis of the Scott Dam under seismic loading to FERC.
Article 46	Requires Licensee to continue to consult and cooperate with appropriate Federal, state, and other natural resources agencies for the protection and development of the environmental resources and values of the Project area.
Article 47	Specifies annual charges that the Licensee will pay to the United States.
Article 48	Gives the Licensee authority to grant permission for certain types of use and occupancy of Project lands and waters without FERC approval as long as the use is consistent with protecting and enhancing scenic, recreational, and other environmental values of the Project.
Article 49	Specifies terms and conditions of amortization funds.
Article 50	FERC may modify or terminate this license in any manner considered appropriate in light of the final disposition of any litigation involving the water and related contractual rights with are incident in this Project.
Article 51	Requires the Licensee to file for FERC approval a plan to upgrade the Tomki Creek gage. [deleted]
Article 52	Requires the Licensee to file for FERC approval a plan to implement and comply with NOAA Fisheries' Reasonable and Prudent Alternative, and Reasonable and Prudent Measures of the Biological Opinion filed by NOAA Fisheries on November 29, 2002.
Article 53	Requires the Licensee to file for FERC approval a plan for (1) funding of annual Chinook salmon carcass surveys; and (2) funding of the California Department of Fish and Game's Chinook salmon and stock rescue program.
Article 54	Requires the Licensee to file for FERC approval a plan to conduct or fund annual surveys to identify and monitor nesting, perching, and foraging areas used by bald eagles in the Lake Pillsbury area.
Article 55	Requires the Licensee to file for FERC approval a plan to conduct or fund bathymetric surveys of Lake Pillsbury every 10 years, beginning in 2005.
Article 56	Requires the Licensee extend a public boat ramp if water levels at both the Fuller Grove and Pillsbury Pines boat ramps are too low to permit the use of either ramp on three out of any 10 consecutive Labor Day holiday weekends following implementation of the flow schedule required by Article 51.
Article 57	Requires the Licensee install a continuous reading thermograph below Scott Dam during the months of August through October for a period of 10 years beginning in 2004.
Article 58	FERC reserves authority to require modifications to the Project license as may be necessitated by modification by the California State Water Resources Control Board of its Decision 1610.

Notes: Articles 1 to 37 described in FERC's Form L-5, Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters and Lands of the United States (FERC 1975). Articles 38, 39, and 43 were removed from the Project license on January 28, 2004 (106 FERC ¶ 61,065).

2.5.1.2 Water Rights

PG&E holds water rights for both power and consumptive uses. Water is diverted from the Eel River for generation at Potter Valley Powerhouse in the East Branch Russian River Watershed. After passing through the Potter Valley Powerhouse, a portion of the powerhouse outflow is diverted via canals to PVID for consumptive use. The remaining outflow is abandoned to the East Branch Russian River. This abandoned water from powerhouse operations adds significant inflow to Lake Mendocino and benefits downstream users.

PG&E has three licensed water rights for the Project diversions and two pre-1914 water rights (Table 2-7). License 1424, with a priority date of March 12, 1920, allows PG&E to divert and store up to 102,366 acre-feet per annum (afa) at Lake Pillsbury for the beneficial uses of hydropower generation and incidental Fish and Wildlife Protection and Enhancement. License 1199, with a priority date of August 15, 1927, allows PG&E to divert and store up to 4,500 afa at Lake Pillsbury for irrigation purposes within the PVID service area. License 5545, with a priority date of March 11, 1930, allows PG&E to divert to storage up to 4,908 afa of water at Lake Pillsbury and to directly divert up to 40 cfs from the Eel River for irrigation purposes within the PVID service area in the Russian River Watershed.

PG&E claims a pre-1914 water right to directly divert up to 340 cfs from the Eel River, as specified in Statement of Water Diversion and Use (SWDU) 1010, for power generation and irrigation use. PG&E also claims a pre-1914 water right to store up to 1,457 afa in Van Arsdale Reservoir, as specified in SWDU 4704, for power, irrigation and domestic use.

Table 2-7. Summary of Existing Water Rights

Appl. No.	License/ Permit No.	SWDU No.	Priority / First Use	Gage	Storage (afa)	Direct Diversion (cfs)	Season		Description (Name of Works)	Point of Diversion	Place of Use	Type of Use	Water Right Class
							Begin	End					
1719	1424	–	3/12/1920	E 1	102,366	–	Nov 1	Jun 1	Lake Pillsbury (Scott Dam)	Eel River	Potter Valley Powerhouse	P, FWL	License
5661	1199	–	8/15/1927	E 1	4,500	–	Nov 1	Apr 30	Lake Pillsbury (Scott Dam)	Eel River	PVID	I	License
6594	5545	–	3/11/1930	E 1	4,908	–	Nov 1	Jun 1	Scott Dam	Eel River	PVID	I	License
				E C6	–	40	May 1	Oct 31	Cape Horn Dam				
–	–	1010	1905	E 16	–	340	–	–	Potter Valley Powerhouse Diversion	Eel River	Potter Valley Powerhouse	P, I	Pre-1914
–	–	4704	1907	E 3	1,457	–	–	–	Van Arsdale	Eel River	Potter Valley Powerhouse and PVID	P, I, D	Pre-1914

Notes: afa = acre-feet per annum
cfs = cubic feet per second
D = domestic
FWL = fish and wildlife
I = irrigation
P = power
PVID = Potter Valley Irrigation District
SWDU = Statement of Water Diversion and Use

3.0 REASON FOR SURRENDER

On April 6, 2017, PG&E filed a NOI[1] to prepare an application for a new license for the Project and a PAD with the FERC following the Integrated Licensing Process (ILP). PG&E later determined that it would be contrary to the best interests of its electric ratepayers to continue relicensing the Project. Therefore, on January 25, 2019, PG&E filed a Notice of Withdrawal of the NOI and PAD for the Project, stating PG&E was: 1) discontinuing its efforts to relicense the Project; and 2) terminating its efforts to transfer or sell the Project.[2]

On March 1, 2019, in response to PG&E's Notice of Withdrawal, FERC issued a Notice Soliciting Applications[3] from any party interested in filing a license application for a new license for the Project, stating that applicants must first file a NOI and PAD. On June 28, 2019, a group of acknowledged proxies for a new Regional Entity (hereafter referred to as the NOI Parties[4]) submitted an NOI to the FERC identifying their intent to file an application for new license for the Project utilizing the FERC's ILP.[5]

On January 31, 2022, the NOI Parties submitted a letter to the FERC indicating they had not established a new Regional Entity or accomplished the other tasks identified in their process plan, and, as a result, would not file a final license application for the Project as required.[6]

Given the FERC's solicitation did not result in a viable new applicant, on May 11, 2022, FERC directed PG&E to provide a plan and schedule for submitting a Surrender Application by July 11, 2022.[7] In response, PG&E filed a proposed plan and schedule on July 8, 2022.[8] The plan and schedule stated that PG&E would file a Surrender Application with FERC within 30 months after FERC approval of the proposed plan and schedule. The FERC approved PG&E's proposed plan and schedule on July 29, 2022.[9] Therefore, the deadline for filing of the Surrender Application is January 29, 2025.

1 FERC Accession Nos. 20170406-5314 (Public) and 20170406-5315 (Privileged)

2 FERC Accession No. 20190125-5100

3 FERC Accession No. 20190301-3038

4 The NOI parties include: Sonoma Water, Round Valley Indian Tribes, Mendocino County Inland Water and Power Commission, California Trout, and Humboldt County Public Works Department

5 FERC Accession No. 20190628-5265

6 FERC Accession No. 20220131-5223

7 FERC Accession No. 20220511-3004

8 FERC Accession No. 20220708-5267

9 FERC Accession No. 20220729-3016

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4.0 CONCEPTUAL DECOMMISSIONING PLAN

4.1 Introduction

This Conceptual Decommissioning Plan provides an overview of PG&E's activities related to decommissioning of Project facilities such that the Project will be removed from FERC and DSOD jurisdiction and no longer be operated or maintained in the future by PG&E.

Decommissioning of the Project includes:

- Removal of Scott and Cape Horn Dams followed by site restoration;
- Restoration of the remnant inundation zone of Lake Pillsbury and Van Arsdale Reservoir;
- Removal and restoration of recreational facilities (e.g., campgrounds; day-use facilities; recreation access roads and trails; kiosk; and boat ramps) located on Forest Service and PG&E lands;
- Abandoning in place and capping underground Project facilities;
- Leaving in place Project facility access roads on private lands; and
- Removal or leaving in place the remaining Project support facilities and features.

The Conceptual Decommissioning Plan is organized into two geographic areas—Scott Dam Area and Cape Horn Dam Area. PG&E's approach to removal of the dams and the associated lake/reservoir, and the decommissioning of associated Project support facilities/features is summarized for each area. Due to the complexity of construction activities, a more detailed description is provided for the removal of Project dams. Refer to Tables 4-1 and 4-2 for a summary of the decommissioning of Project facilities and features in the Scott Dam and Cape Horn Dam areas and the associated land jurisdiction.

PG&E also received a proposal from CDFW California Trout, Humboldt County, Mendocino County Inland Water and Power Commission, the Round Valley Indian Tribes, Sonoma County Water Agency, and Trout Unlimited (collectively referred to as the Proponents) for Project facilities in the Cape Horn Dam Area. The proposal is called the "New Eel-Russian Facility".

Proponents are committed to the coequal goals of (1) improving fish migration and habitat on the Eel River with the objective of achieving naturally reproducing, self-sustaining, and harvestable native anadromous fish populations and (2) maintaining material and continued water diversion from the Eel River through the existing tunnel to the Russian River to support water supply reliability, fisheries, and water quality in the Russian River basin.

Two approaches for achieving the objectives are currently proposed:

- Control Section with Pump Station Approach, and
- Roughened Channel with Gravity Supply Approach.

The Regional Entity comprised of Sonoma County Water Agency, Mendocino County Inland Water and Power Commission, and the Round Valley Indian Tribes is responsible for modifications (construction) at Cape Horn Dam. A complete description of the Regional Entity's proposed modifications to Cape Horn Dam is provided in Subsections 4.3.1.2 and 4.3.1.3; these proposed modifications are preliminary and subject to further design updates and stakeholder input.

To implement the Regional Entity's proposed modifications, the Final Surrender Application would include a request to FERC to authorize the conveyance of property interests in various Project assets and facilities, including the existing intake and fish screen facilities, the tunnel and flowline, and the powerhouse and outlet works in order that they might be modified. If either approach is included in the Final Surrender Application, the Regional Entity will seek federal authority to complete the Facility as expeditiously as practicable after deconstruction. Such authority may be granted pursuant to a nonpower license, partial license transfer, or some other FERC approved procedure.

4.2 Scott Dam Area - Decommissioning of Project Facilities/Features

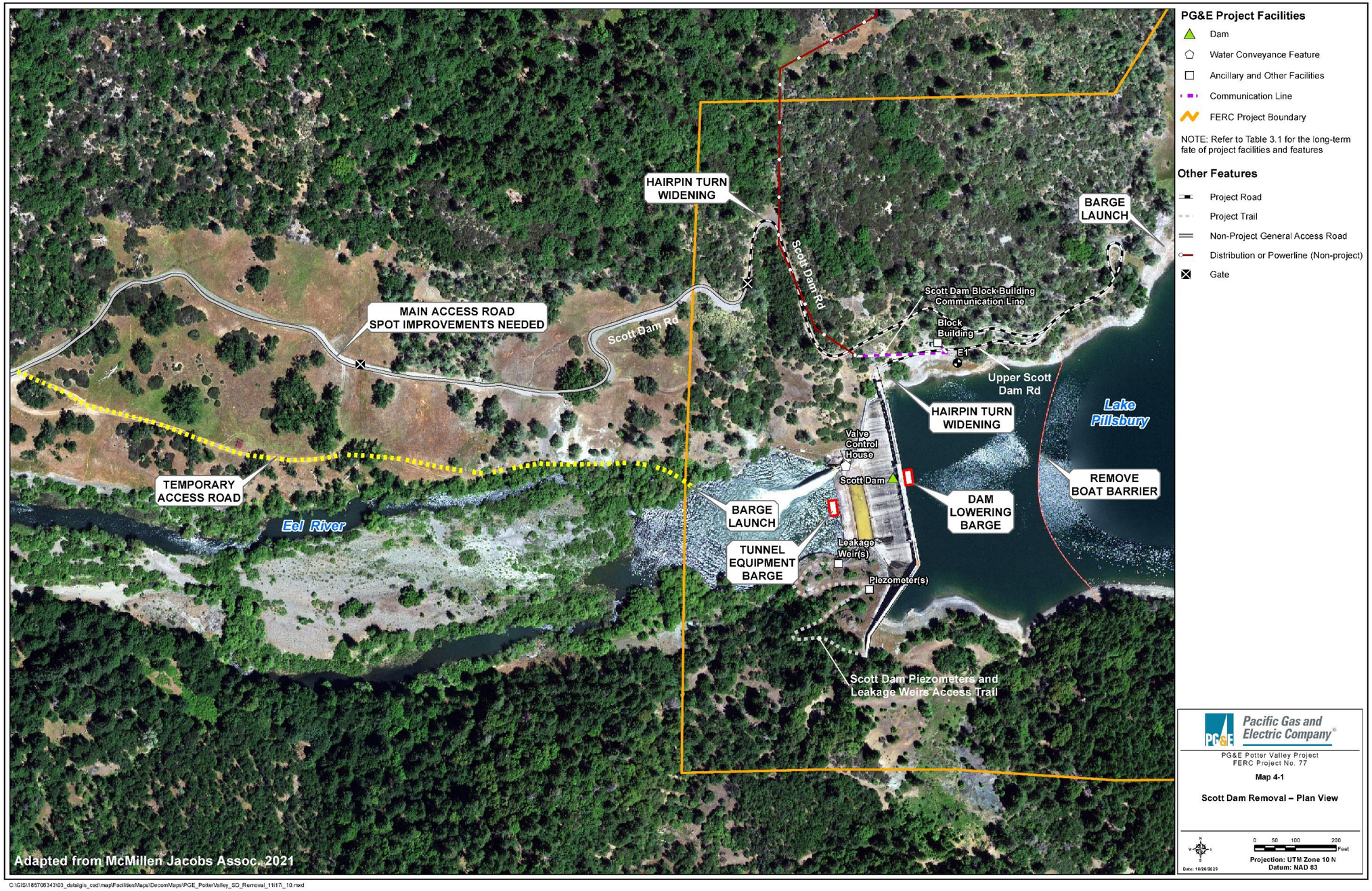
The following provides a description of decommissioning of Project facilities and features located in the Scott Dam Area. This includes Scott Dam, Lake Pillsbury, and associated Project support facilities and features.

4.2.1 Scott Dam

PG&E is evaluating removal of Scott Dam by two different approaches: Rapid Dam Removal and Phased Dam Removal. The description of each removal approach is based on the *McMillen Jacobs Associates Scott Dam and Cape Horn Dam Removal Alternatives Technical Memorandum* (November 2021), existing site conditions, engineering drawings, and technical expertise. The approaches for removal of Scott Dam should be considered preliminary in nature and are subject to change based on further engineering design and resource agency consultation. The two removal approaches are described below. Note that Scott Dam Area elevations cited herein are based on PG&E's datum, which equals National Geodetic Vertical Datum of 1929 (NGVD29) + 81.7 feet.

4.2.1.1 Rapid Dam Removal

Rapid Dam Removal entails expedited removal of Scott Dam (approximately 2 years in duration depending on site conditions and flows) such that no water is impounded, and the structure would no longer be under the jurisdiction of FERC or DSOD. Rapid Dam Removal results in flushing of a large volume of sediment (approximately 12 million cubic yards) downstream of the remnant reservoir into the Eel River. See Map 4-1 and Figures 4-1 and 4-2 for plan and section views of the dam removal.



Map 4-1. Scott Dam Removal - Plan View.

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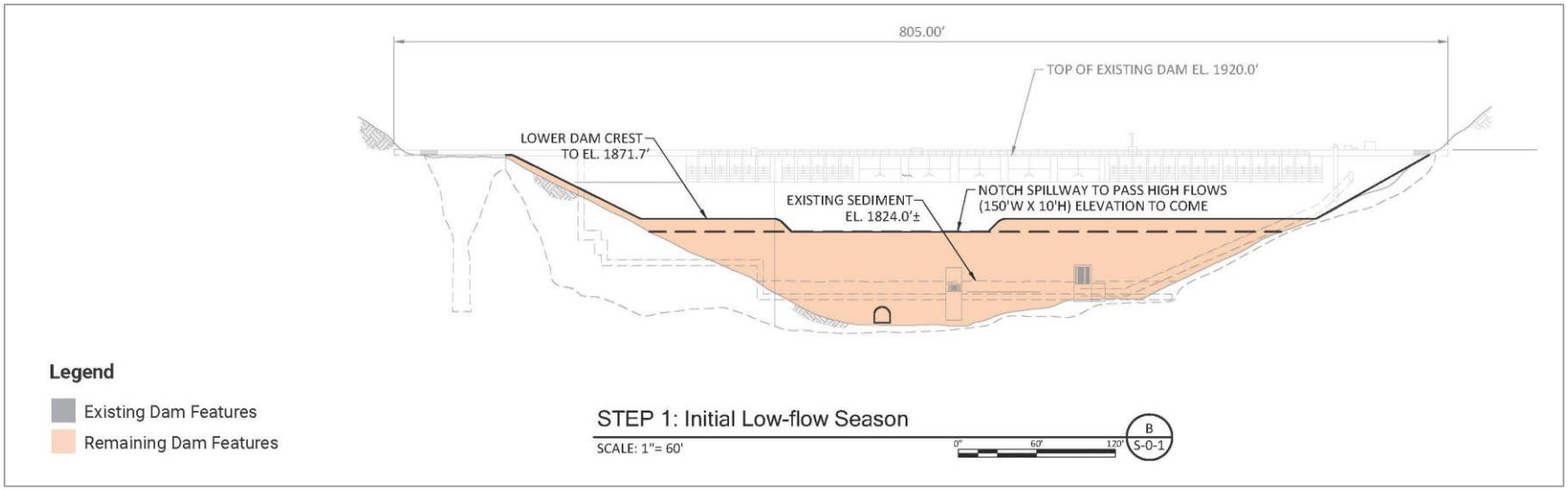


Figure 4-1. Scott Dam Rapid Dam Removal Approach – Initial Dam Removal (Initial Low-flow Season).

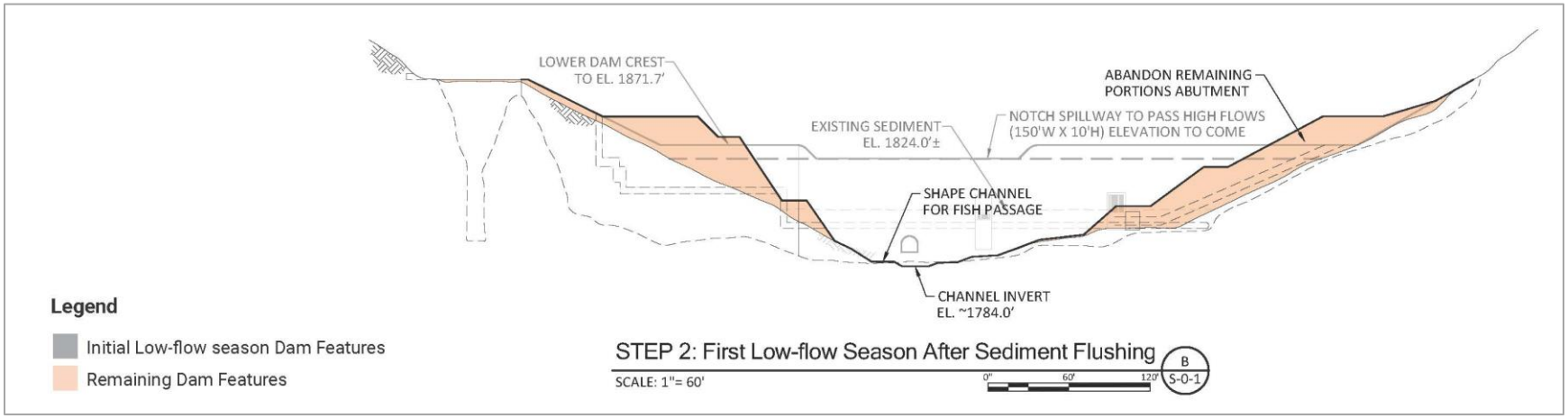


Figure 4-2. Scott Dam Rapid Dam Removal Approach – Final Dam Removal (First Low-flow Season After Sediment Flushing).

Specifically, Rapid Dam Removal includes the following:

Initial Low-flow Season Activities: June – October (1st Year)

- Initiate reservoir drawdown after the runoff season when inflows are generally below 400 cfs, the approximate capacity of the needle valve.
  - The reservoir storage at the start of the drawdown period (June) will be approximately 50,000 acre-feet at an elevation of 1,900 feet. Completion of the drawdown will occur in October at approximately 10,000 acre-feet of storage at an elevation of 1,861.7 feet.
  - To the extent possible, timing of drawdown (flow releases) will be coordinated with water demands in the East Branch of the Russian River.
  - Drawdown rates between about 1 and 2 feet per day are proposed, consistent with the U.S. Society on Dams (USSD) Guidelines for Dam Decommissioning Projects (USSD 2015).
- Construct a temporary road (approximately 1,600 feet) off Scott Dam Road to provide access to a temporary barge launch at the downstream terminus of the existing plunge pool below the dam (Map 4-1).
  - A barge will be placed at the launch site to move heavy equipment to the spillway apron. At the spillway apron, a ramp will be constructed to allow movement of construction equipment between the barge and spillway apron.
  - Road improvements to Scott Dam Road and Upper Scott Dam Road will also be completed to facilitate equipment access to the dam site (Map 4-1).
- Construct an adit tunnel (approximately 15 feet in diameter; capacity of 7,000 cfs) in the base of the spillway, incorporating a temporary plug approximately 8-10 feet from the upstream dam face.
  - PG&E will complete a concrete condition assessment and stability analysis during development of the final engineering design.
  - At the downstream terminus of the tunnel, a channel (approximately 80–90 feet in length and 7.5–14.5 feet deep) and concrete buttress will be constructed in the spillway apron to facilitate downstream sediment transport.
- Remove the upper portion of the dam (dam lowering and notching).
  - Dam removal design will be approved by FERC Dam Safety and DSOD prior to initiation of dam removal activities.
  - Dam removal activities will initially take place using barge-mounted equipment.
    - A small barge-mounted crane will be used to remove larger, removable appurtenances from the top of the dam (steel slide gates, radial gates, gate operating cylinders, hoists, and sheds).
  - Once the appurtenances have been removed from the top of the dam and spillway, a barge-mounted hydraulic impact hammer or similar equipment would then proceed with removal of the upper portion of the dam.

  - The lowered crest elevation would be between elevation 1,861.7 and 1,890.0 feet, leading to a total volume of demolished material between about 4,000 cubic yards and 16,000 cubic yards, respectively.
  - During the dam lowering, a large notch (10–15 feet deep and 150–200 feet wide; overall discharge capacity between 15,000–40,000 cfs depending on head) will be constructed in the spillway.
  - Rubble and other material generated from the dam lowering and notching will be side-cast down the face of the spillway or placed on barges and hauled to a temporary holding area on PG&E-owned land near the dam for later placement.
    - Some large clean material from the dam (e.g., no rebar protruding, greater than about 2 feet diameter) will be placed in the plunge pool area below the final river grade. Material will be large enough, and placed deep enough, so that it will not be eroded/mobilized before the accumulated bedload in the reservoir is released and has an opportunity to occupy the space.

- Dredge sediments near the new tunnel intake.
  - Reservoir sediment deposits (estimated 15 feet deep) immediately upstream of the concrete adit plug (tunnel intake) will be removed using a clamshell dredge or similar approach.

First High-flow Season Activities: November (1st Year) – May (2nd Year)

- Remove the adit plug and initiate sediment flushing during the first high-flow season (November – May).
  - Prior to the initiation of sediment flushing, the concrete plug in the adit tunnel near the upstream face of the dam (tunnel intake) will be drilled and explosives placed in the hole.
  - Following pre-established protocols related to river flow forecasting, the explosives would be detonated during or preceding an anticipated flood event of sufficient magnitude to evacuate fine sediment deposits from the reservoir (likely between December and March).

First Low-flow Season After Sediment Flushing Activities: June – October (2nd Year)

- Complete final dam removal during the first low-flow season following sediment flushing activities (June – October).
  - Demolition will occur using land-based heavy equipment such as hydraulic excavators and hoe rams and/or drilling and blasting techniques. Demolition using a crane and wrecking ball may also be used.
  - Dam removal includes cutting a section through the base of the dam to accommodate the bankfull flood and the 100-year flood.
  - The total volume of material comprising the lowered dam is roughly 115,000 cubic yards. Approximately 80 percent of the material (approximately 92,000 cubic yards) would be removed during demolition.

- Some large clean material from the dam (e.g., no rebar protruding, greater than about 2 feet diameter) will be stored in the portion of the plunge pool area below the final river grade.
- The bulk of the remaining materials will be stored and capped on site (e.g., along the left abutment, on the cribwall, and/or behind the remainder of the dam upstream of the pinnacle).

4.2.1.2 Phased Dam Removal

Phased Dam Removal entails successive lower and notching of Scott Dam over three seasons such that sediment is flushed from the reservoir downstream into the Eel River during high flows in three pulses (1st Year – approximately 1.1 million cubic yards; 2nd Year – approximately 8.5 million cubic yards; and 3rd Year – approximately 2.4 million cubic yards). Ultimately, the dam would no longer impound water and would be removed from FERC and DSOD jurisdiction. See Map 4-1 and Figures 4-3 through 4-6 for plan and section views of the dam removal, respectively.

Specifically, Phased Dam Removal includes the following:

Initial Low-flow Season Activities: June – October (1st Year)

- Initiate reservoir drawdown after the runoff season when inflows are generally below 400 cfs, the approximate capacity of the needle valve.
  - The reservoir storage at the start of the drawdown period (June) will be approximately 50,000 acre-feet at an elevation of 1900 feet. The initial reservoir drawdown will begin at an elevation of approximately 1,850 feet.
  - To the extent possible, timing of drawdown (flow releases) will be coordinated with water demands in the East Branch of the Russian River.
  - Drawdown of between 1 and 2 feet per day is proposed, consistent with the USSD Guidelines for Dam Decommissioning Projects (USSD 2015).
- Implement road improvements on Scott Dam Road and Upper Scott Dam Road. Refer above to Rapid Dam Removal for a description of road and access improvements (Map 4-1).

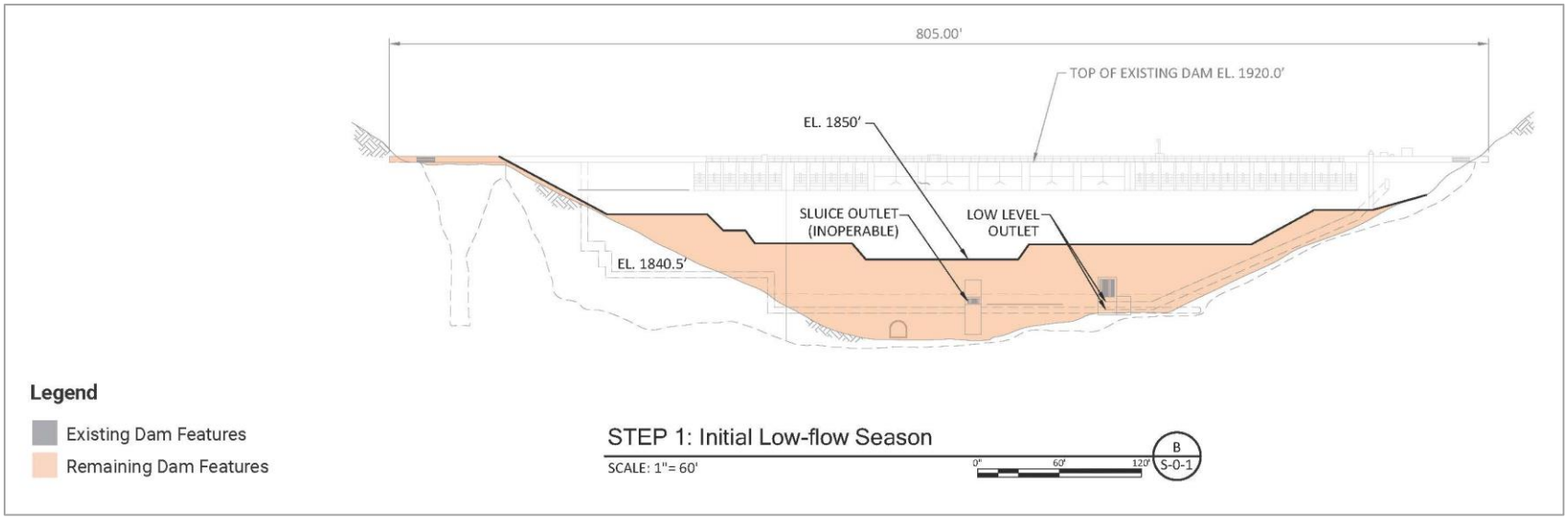


Figure 4-3. Scott Dam Phased Dam Removal Approach – Initial Dam Removal (Initial Low-flow Season)

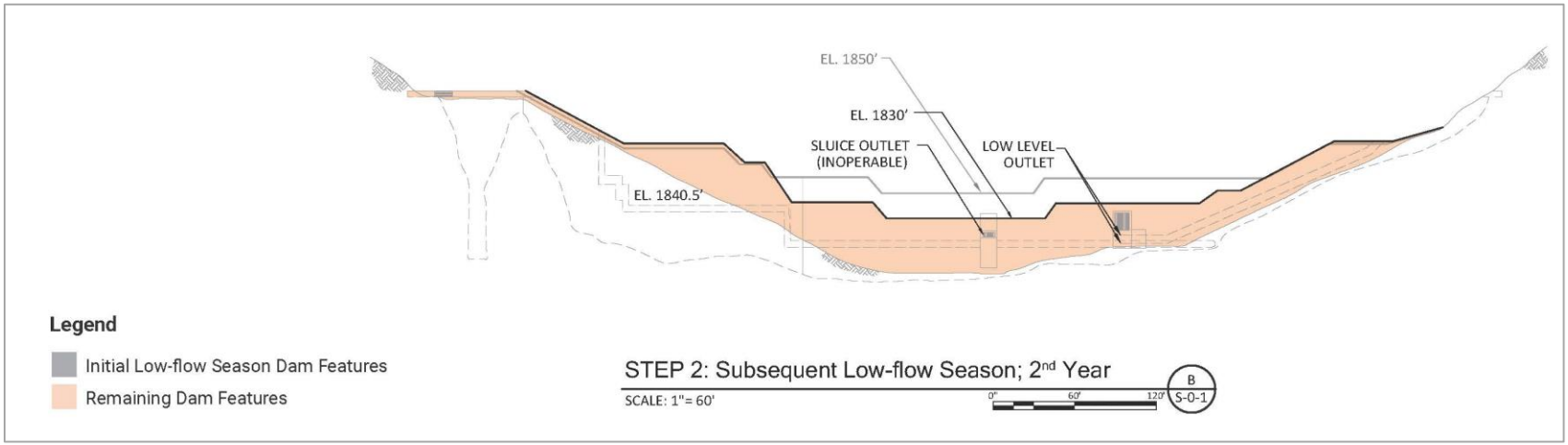


Figure 4-4. Scott Dam Phased Dam Removal Approach – Successive Dam Lowering and Notching (Subsequent Low-flow Season; 2nd Year)

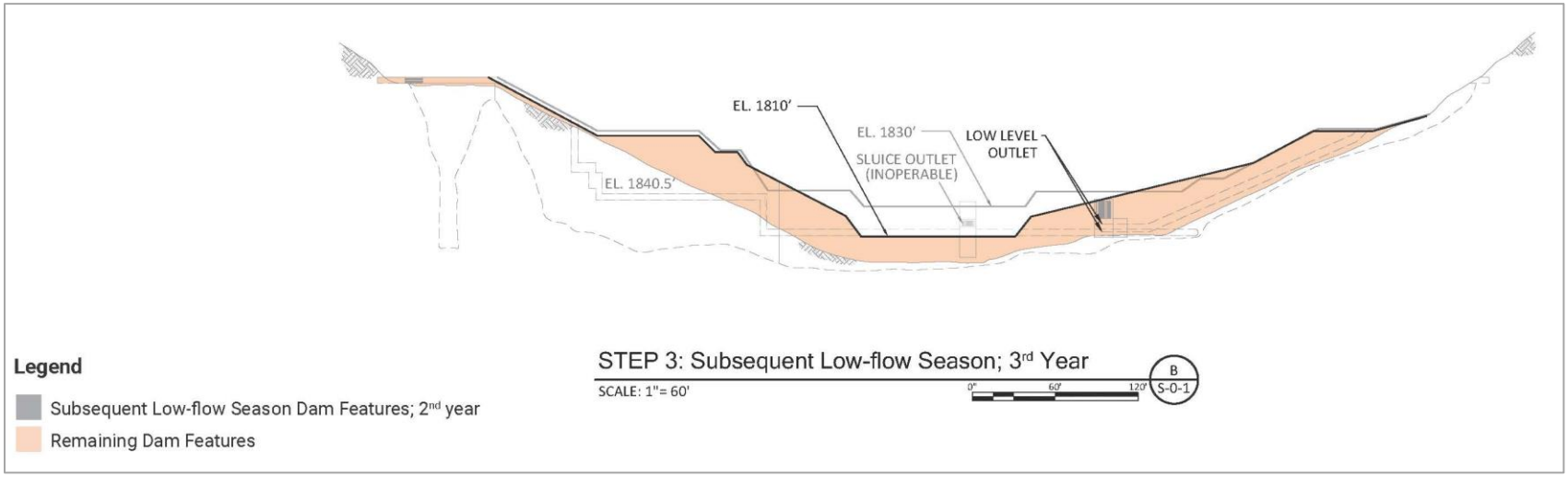


Figure 4-5. Scott Dam Phased Dam Removal Approach – Successive Dam Lowering and Notching (Subsequent Low-flow Season; 3rd Year)

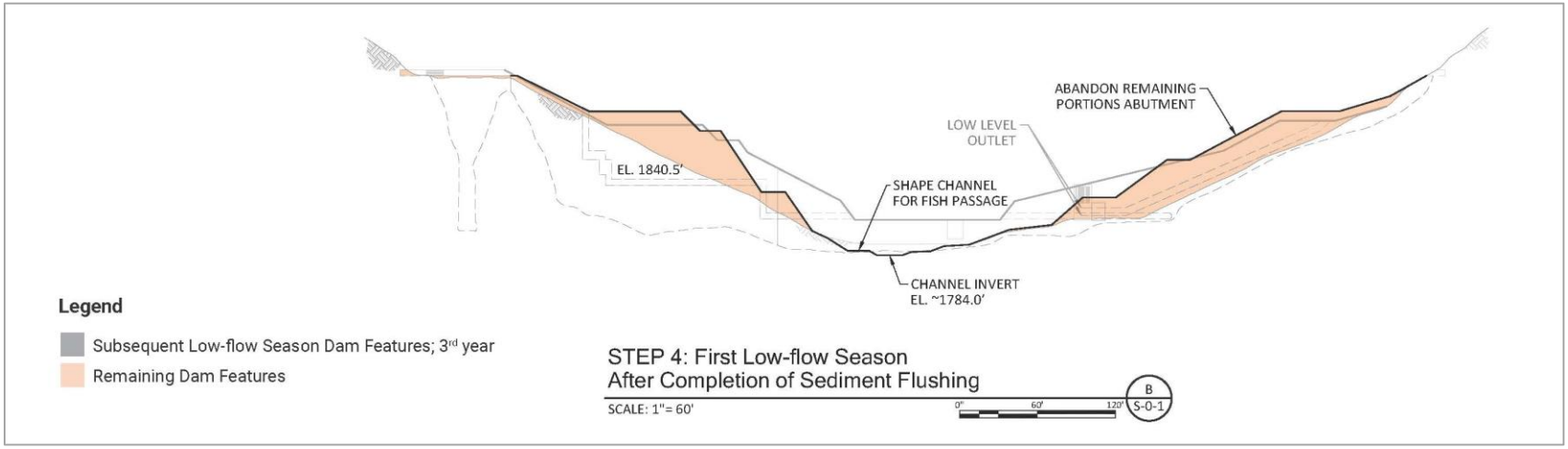


Figure 4-6. Scott Dam Phased Dam Removal Approach – Final Dam Removal (First Low-flow Season After Completion of Sediment Flushing)

- Initiate dam lowering and notching to 1,850 feet elevation.
  - PG&E will complete additional analysis in development of the final engineering design that will be approved by FERC and DSOD prior to commencing removal activities.
  - Initial dam lowering and notching will take place using barge-mounted machinery, similar to the Rapid Dam Removal approach.
    - A small barge-mounted crane would be used to remove larger, removable appurtenances from the top of the dam (i.e., steel slide gates, radial gates, gate operating cylinders, hoists, and sheds). Hoe rams or similar machinery would then be used to lower the dam.
    - Removal will also include provisions for setting vertical explosives in lifts and sequentially blasting, side-casting, hauling off and/or placement of material.
    - The dam will initially be lowered to approximately 1,850 feet elevation and include a spillway notch sufficient to convey the anticipated high winter and spring flows.
  - Dam material disposal will be implemented consistent with methods described above under Rapid Dam Removal.

First High-flow Season Activities: November – May (1st Year)

- Flush sediment from the reservoir through the dam notch during high flows.
  - During the first high-flow season, sediment stored in the reservoir would be flushed downstream through the dam notch. Lowering the dam to an elevation of 1,850 feet corresponds with an anticipated release of approximately 1.1 million cubic yards of stored sediment (assuming a 50-foot-wide notch) (Stillwater Sciences 2021).

Subsequent Low-flow Season Activities: June – October (2nd Year and 3rd Year)

- Lower and notch dam over two additional successive low-flow seasons (2nd year dam elevation -1,830 feet, 3rd year dam elevation – 1,810 feet)
  - The dam will be successively lowered and notched during two subsequent low-flow construction seasons (June-October), first to elevation 1,830 feet (20 feet of lowering the 2nd year), and then to elevation 1,810 feet (an additional 20 feet of lowering the 3rd year). Construction methods will be similar to those described above under initial dam lowering and notching.

Subsequent High-flow Seasons Activities: November (2nd Year) – May (3rd Year) and November (3rd Year) – May (4th Years)

- Flush sediment from the reservoir through the dam notch during high flows.
  - During the second and third high-flow seasons, sediment stored in the reservoir would be flushed downstream through the dam notch. The volume of material expected to be passively flushed and evacuated from the reservoir is 8.5 million cubic yards (2nd – 3rd year) and 2.4 million cubic yards (3rd – 4th year).

First Low-flow Season After Completion of Sediment Flushing Activities: June – October (4th Year)

- Complete final dam removal.
  - Final dam removal would commence (June–October) after three successive low-flow period dam lower/notchings and high-flow sediment flushing events.
  - The construction removal activities, including deposition of dam material, are consistent with those described above under Rapid Dam Removal.

4.2.2 Lake Pillsbury

Following removal of Scott Dam, the former inundation zone of Lake Pillsbury will return to a natural river channel. PG&E will restore the former inundation zone, including the historic river channel.

4.2.3 Other Associated Project Support Facilities and Features

PG&E has reviewed the associated Project support facilities and features in the Scott Dam Area. Table 4-1 provides a summary of decommissioning of Project facilities and features in the Scott Dam Area and the associated land ownership. Decommissioning of Project facilities and features includes leaving the facility in place (L), removal of the facility with restoration (RR), transfer of the facility, if requested by a qualified interested party (T), and removal of the facility with no restoration (X).

Table 4-1. Decommissioning of Project Facilities and Features in the Scott Dam Area.

Project Facility/Feature	Land Ownership	Decommissioning		
		Rapid Dam Removal	Phase Dam Removal	Potential Transfer
Dam and Associated Facility/Features				
Scott Dam	PG&E	RR	RR	
Valve Control House	PG&E	X	X	
Reservoir				
Lake Pillsbury (storage reservoir)	PG&E/USFS	RR	RR	
Reservoir Gage				
E1—Lk Pillsbury NR Potter Valley CA (11470000)	PG&E	X	X	
River Gages				
E2—Eel R BL Scott Dam NR Potter Valley CA (11470500)	PG&E	L (remove equip only)	L (remove equip only)	T (leave equipment)

Table 4-1. Decommissioning of Project Facilities and Features in the Scott Dam Area (continued)				
Project Facility/Feature	Land Ownership	Decommissioning		
		Rapid Dam Removal	Phase Dam Removal	Potential Transfer
Leakage Weirs and Piezometers and Associated Trail				
Scott Dam Leakage Weirs	PG&E	RR	RR	
Scott Dam Piezometers	PG&E	L (cap)	L (cap)	
Scott Dam Piezometers and Leakage Weir Access Trail	PG&E	L	L	
Project Communication Line				
Scott Dam Block Building Communication Line	PG&E	X	X	
Ancillary and Support Facilities				
Scott Dam Block Building	PG&E	L (remove equip only)	L (remove equip only)	
Scott Dam Boat Barrier	PG&E	X	X	
Project Facility Access Roads				
Gage E2 Access Rd	PG&E	L	L	Easement
Scott Dam Rd	PG&E	L	L	
Upper Scott Dam Access Rd	PG&E	L	L	
Recreation Facilities and Access Roads				
Family Campgrounds				
Fuller Grove Campground	USFS	RR	RR	T
Fuller Grove Campground Rd	USFS	RR	RR	T
Navy Campground	USFS	RR	RR	T
Navy Campground Access Rd (18N50)	USFS	RR	RR	T
Navy Campground Loop Rd	USFS	RR	RR	T
Oak Flat Campground	USFS	RR	RR	T
Oak Flat Campground Rd	USFS	RR	RR	T
Pogie Point Campground	USFS	RR	RR	T
Pogie Point Campground Loop Rd	USFS	RR	RR	T
Pogie Point Campground and Day-Use Area Access Rd (18N75)	USFS	RR	RR	T
Sunset Point Campground	USFS	RR	RR	T
Sunset Point Campground East Loop Rd	USFS	RR	RR	T
Sunset Point Campground West Loop Rd	USFS	RR	RR	T

Table 4-1. Decommissioning of Project Facilities and Features in the Scott Dam Area (continued)				
Project Facility/Feature	Land Ownership	Decommissioning		
		Rapid Dam Removal	Phase Dam Removal	Potential Transfer
Trout Creek Campground	PG&E	RR	RR	T
Trout Creek Campground Loop Rd	PG&E	RR	RR	T
Group Campgrounds				
Fuller Grove Group Campground	PG&E	RR	RR	T
Fuller Grove Group Campground Access Rd	PG&E	RR	RR	T
Trout Creek Group Campground	PG&E	RR	RR	T
Trout Creek Campground Rd	PG&E	RR	RR	T
Day-Use Facilities				
Eel River Visitor Information Kiosk	USFS	RR	RR	T
Fuller Grove Day-Use Area and Boat Launch	PG&E	RR	RR	
Fuller Grove Day-Use Area and Boat Launch Access Rd	PG&E	RR	RR	
Pillsbury Pines Day-Use Area and Boat Launch	PG&E	RR	RR	
Pillsbury Pines Day-Use Area and Boat Launch Access Rd	USFS/PG&E	RR	RR	
Pogie Point Day-Use Area	USFS/PG&E	RR	RR	
Lake Pillsbury Low Level Boat Launch	USFS/PG&E	RR	RR	

4.3 Cape Horn Dam Area - Decommissioning of Project Facilities/Features

The following provides a description of decommissioning of Project facilities and features located in the Cape Horn Dam Area. This includes Cape Horn Dam, Van Arsdale Reservoir, and other associated Project support facilities and features.

4.3.1 Cape Horn Dam

PG&E is evaluating the decommissioning of Cape Horn Dam under three different approaches: Dam Removal, Control Section with Pump Station, and Roughened Channel with Gravity Supply. The description of approaches is based on the *McMillen Jacobs Associates Scott Dam and Cape Horn Dam Removal Alternatives Technical Memorandum* (November 2021), existing site conditions, engineering drawings, and technical expertise. The approaches for removal of Cape Horn Dam should be considered preliminary in nature and are subject to change based on further engineering design and stakeholder consultation. The three removal approaches are described below. Note that Cape Horn Dam elevations cited herein are based on NAVD88 datum.

4.3.1.1 Cape Horn Dam Removal

The following identifies Cape Horn Dam Removal activities proposed by PG&E. It is assumed that Cape Horn Dam Removal would take place after Scott Dam removal. See Map 4-2 for the plan view of the proposed approach. The dewatering and construction sequencing for this approach is captured graphically in Map 4-3.

Specifically, Cape Horn Dam Removal includes the following activities:

June – October (1st Year)

- Construct a temporary access road on the river-right (looking downstream) from the dam to an area directly across from the existing fish screen (Map 4-2).
  - The access road is necessary to facilitate construction of a temporary cofferdam and channel through the earthen embankment along the existing dam wingwall to pass Eel River flow downstream.
- Construct a small cofferdam along the right bank of the river at the existing dam wingwall to isolate the earthen embankment portion of the dam.
  - Excavate and armor a channel through the earthen embankment to pass Eel River flows downstream during construction.
  - Lower the dam wingwall and provide structural stability improvements, if needed.
- Install a channel-spanning cofferdams upstream and downstream of Cape Horn Dam to isolate the work area.
  - Tie a new upstream cofferdam into the left bank area (near the existing diversion facility) and remove the small wingwall cofferdam to allow Eel River flows to continue to pass downstream of the existing dam.
  - The channel-spanning cofferdam will also allow water to pass through the existing diversion screens.
- Drain the isolated portion of work area between the cofferdams using pumps and/or siphons.
  - Nuisance water would be pumped/siphoned on an ongoing basis during construction and passed downstream and/or into the tunnel.
- Prepare for dam removal by removing sediment stored immediately upstream of the dam to allow access for heavy equipment to begin demolition.
  - The removed sediment will be placed on adjacent PG&E land for future disposal.
- Remove the concrete gravity portion of Cape Horn Dam using land-based heavy equipment such as hydraulic high-traction excavators, hoe rams and/or drilling and blasting.
- Remove the dam wingwall (earthen embankment portion of the dam), fish hotel, exclusion barrier, and fish ladder.
- Store removed dam materials on adjacent PG&E land above the 100-year floodplain on river-right (looking downstream) for future disposal.

- Remove cofferdams after completion of the demolition of Cape Horn Dam and associated facilities, starting with the downstream cofferdam then proceeding to upstream cofferdam.
- Flush remaining sediments impounded in the former reservoir during subsequent high-flow events.

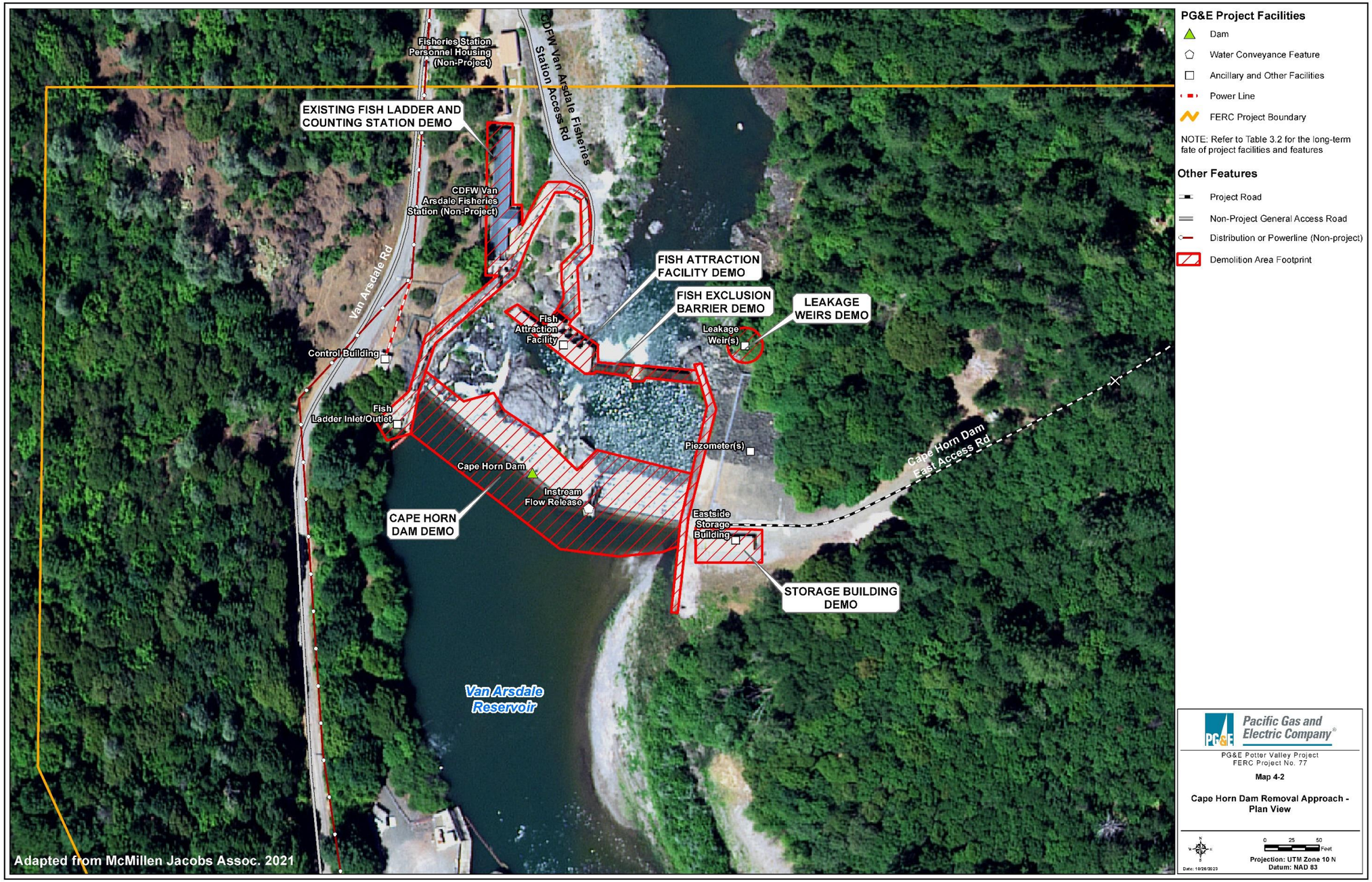
4.3.1.2 Control Section with Pump Station

The Control Section with Pump Station approach proposed by the Regional Entity (Alternative C-1 in McMillen Jacobs Associates 2021) entails substantial removal of the concrete gravity and earthfill portions of Cape Horn Dam and construction of a new pump station near the dam to divert and convey water through a conduit to the existing Van Arsdale Diversion Facility. See Map 4-4, Figure 4-7, and Figure 4-8 for plan and section views of the proposed approach. To minimize the construction time window and potential in-river impacts, it is important that the dam removal and diversion upgrades be constructed at the same time, or immediately sequentially using a single construction window. Both Regional Entity's approaches (Subsection 4.3.1.2 and 4.3.1.3) utilize this construction sequence.

The control section that remains in the river would be approximately 150 feet long. Depending on the final design and excavation plan (pending additional hydraulic modeling, geotechnical evaluation, and consultation), the control section will be composed of residual concrete from the dam, intact bedrock, and rip rap. The purpose of the control section would be to a) allow for volitional passage of salmonids across the range of fish passage design flows, and b) maximize the amount of time that the pump intake screens are at least partially submerged.

Specifically, the Control Section with Pump Station approach includes:

- Lowering a section of the concrete gravity portion of Cape Horn Dam from elevation 1,494.0 feet (NAVD88) to between about 1,445.0 and 1,450.0 feet to create a control section (Note: the final grade will be determined by hydraulic modeling and geotechnical investigations).
  - The portion removed would begin at the existing concrete wingwall and would gently slope downward toward river left to help concentrate flows near the pump station intake.
  - At the end of the control section a vertical section of the dam would remain in place (approximate elevation 1,477.0; elevation to be verified with hydraulic modeling), beyond which the dam would slope upward to match the existing crest elevation (1,494.0 feet).
  - The section would be designed to completely contain the 100-year flow.
  - The section would also be designed to meet state and federal fish passage criteria across the range of fish passage design flows.



Map 4-2. Cape Horn Dam Removal Approach – Plan View.

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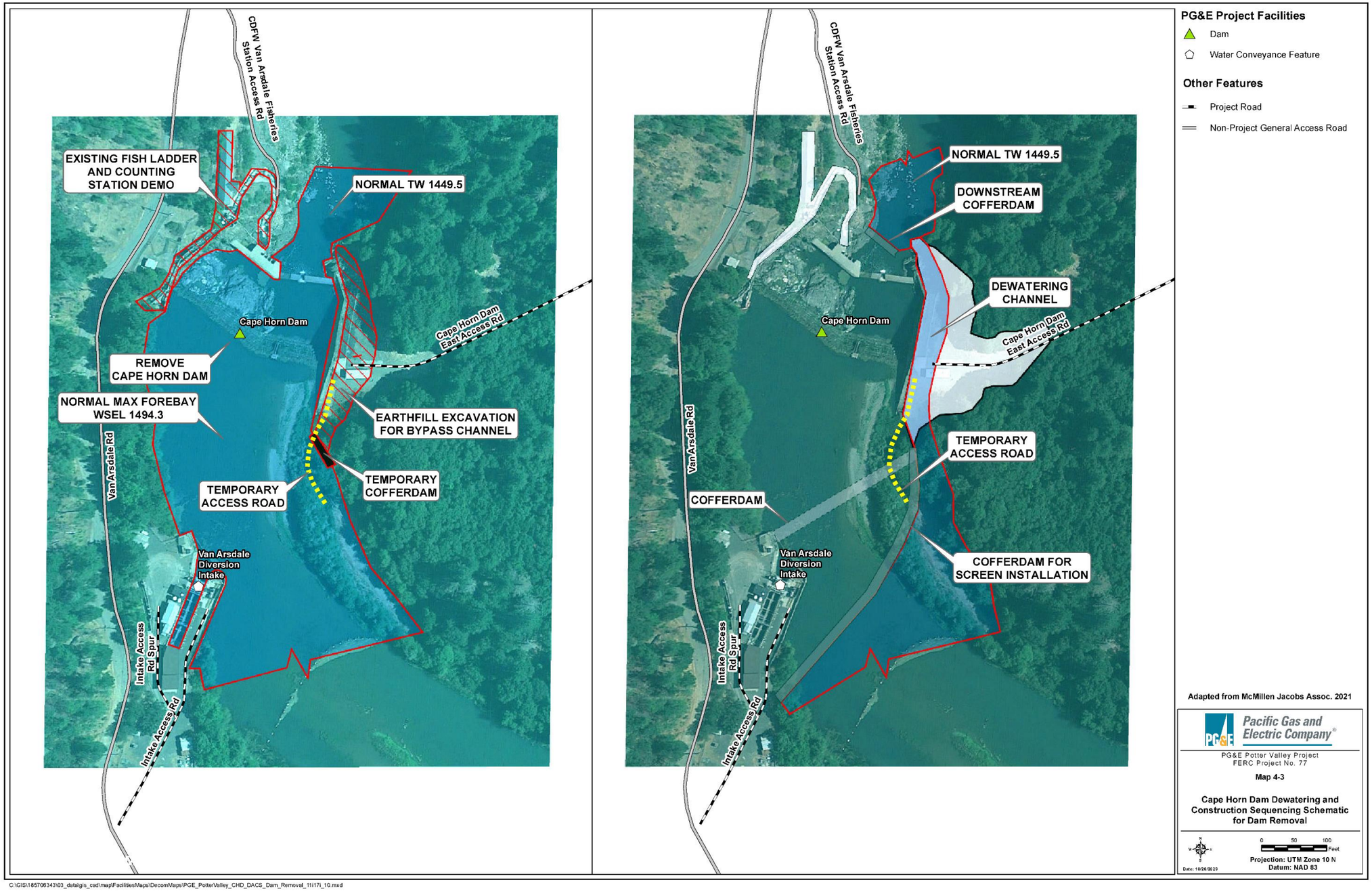

Map 4-3. Cape Horn Dam Dewatering and Construction Sequencing Schematic for Dam Removal.

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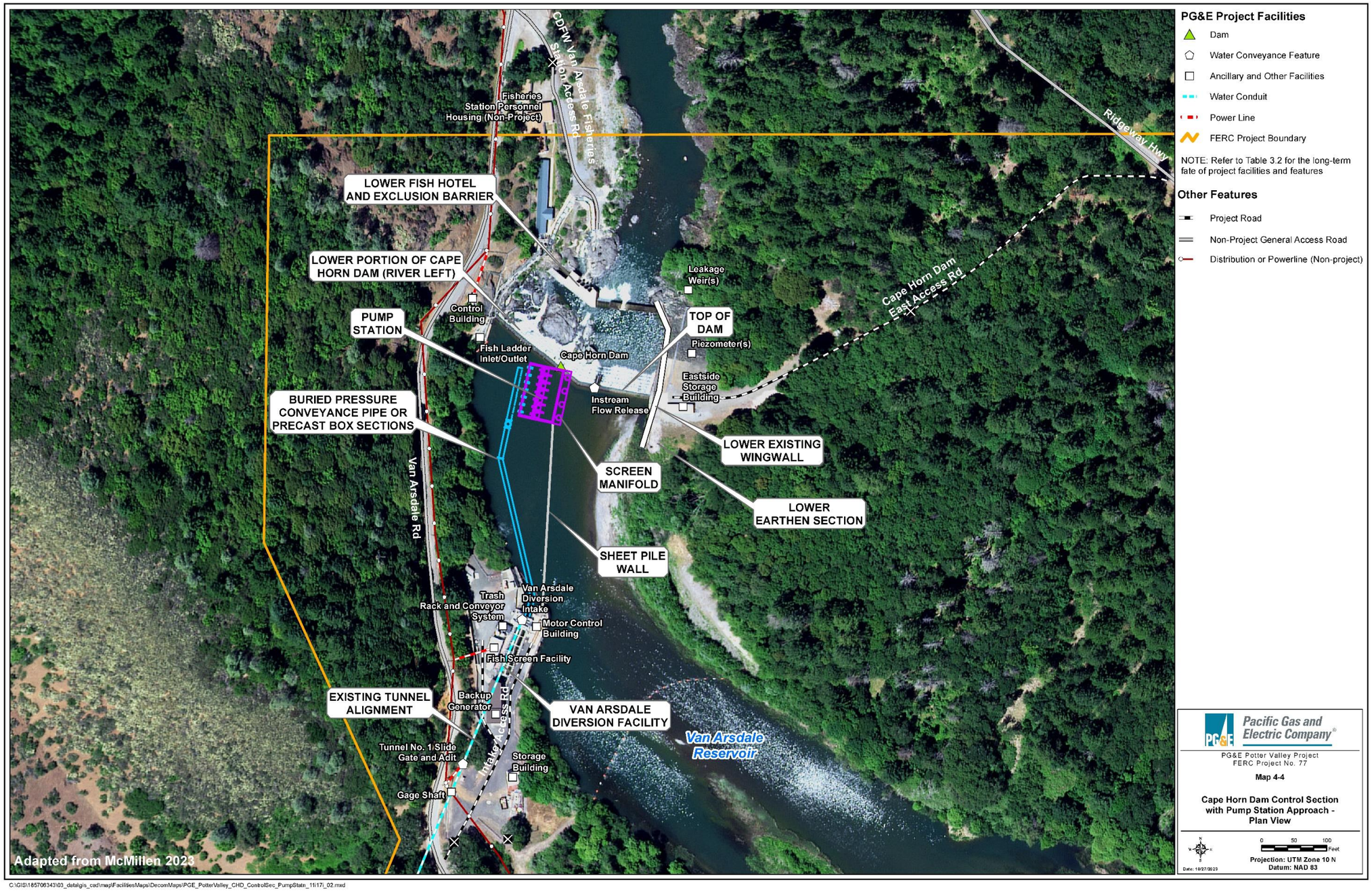

Map 4-4. Cape Horn Dam Control Section with Pump Station Approach – Plan View.

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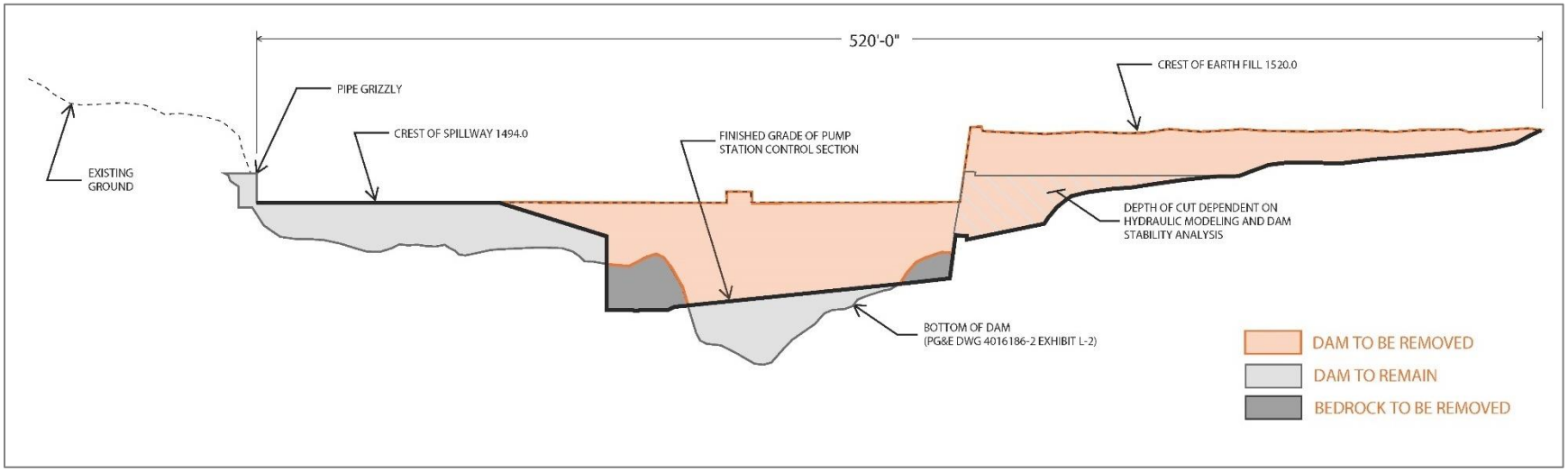


Figure 4-7. Cape Horn Dam Control Section with Pump Station - Final Dam Removal (Cross Section Through Dam)

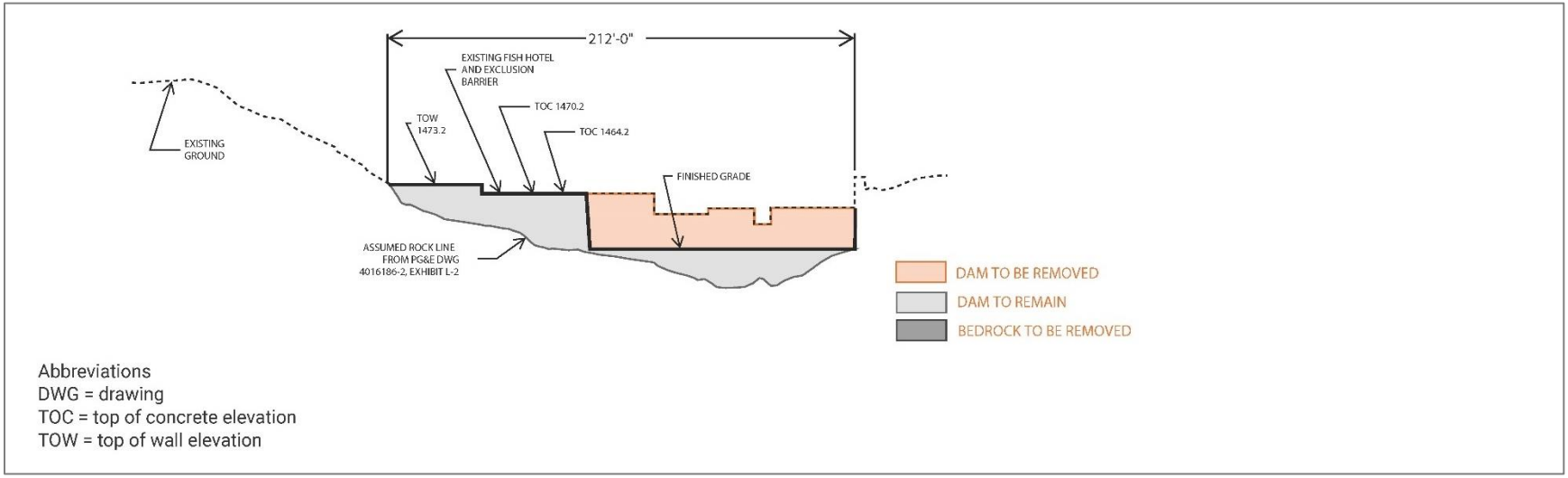


Figure 4-8. Cape Horn Dam Control Section with Pump Station - Final Fish Hotel and Exclusion Barrier Removal (Cross Section Through Fish Hotel and Exclusion Barrier)

- Lowering the existing wingwall to elevation 1,477.0 feet (elevation to be verified with hydraulic modeling and stability analysis) to a) contain the 100-year flow and b) improve the stability of the earthfill section.
  - Lowering the wingwall would require excavating the earthfill portion of the dam down to an approximate elevation of 1,473.5 feet (elevation to be verified with hydraulic modeling and stability analysis). This excavation will include partial demolition of the mass concrete corewall and possibly some of the reinforced concrete corewall.
- Installing a bank protection feature (e.g., sheet pile wall; vegetated revetment; mechanically stabilized earth wall) along river left running parallel with flow between the control section and the existing Van Arsdale Diversion facility to serve as a lateral constraint to route water through the control section and protect the facility from avulsing or out-flanking.
- Removing the existing fish hotel and exclusion barrier, located approximately 100 feet downstream of the control section, down to an elevation approximately 1.0 feet below the lowest elevation of the control section.
- Removing the fish ladder by either total removal or by cutting the walls down to surrounding grade and infilling the pools with flowable fill or similar material. All appurtenances associated with the fish ladder would also be removed.
- Constructing a new reinforced concrete pump station with fish screens rated for a combined diversion flow rate between 300 and 350 cfs and mounted to the face of the pump station along river left.
  - The pump station would be between approximately 80 and 100 feet long in the river flow direction and approximately 60 to 70 feet wide into the bank.
  - The new intake pump station would convey pumped water from a wet well located within the pump station to the existing Van Arsdale Diversion facility via one or more large diameter pipes or box culverts.
  - The screens would be vertically adjustable to accommodate bed fluctuations between 0 and 12 feet while diverting the maximum demand.
- Use of a bladder dam, or other surface elevation control structure, to aid in sediment management and/or to help ensure surface diversion will be evaluated in the hydraulic modeling and design phases.
- Final dimensions of retained dam facilities will be evaluated in the hydraulic modeling and design phases.
- Diverting screened water to a large wet well chamber where pumps would lift the water to one or more large diameter pipes or precast box culverts.
  - Water diversions occur primarily during the winter and spring, rather than the summer, due to the loss of storage behind Scott Dam.
  - The pipe or culvert conveyance would connect with a manifold that combines the pump outlets.

  - If a pipe is selected, the diameter would be approximately 7 to 8 feet for a single pipe, or approximately 5 to 6 feet for two pipes. A box culvert would be similar in size, requiring an approximately 6-by-8-foot section or similar.
  - The conveyance would discharge into the existing Van Arsdale Diversion facility at an elevation of approximately 1,475.0 feet.
- Retrofitting the interior of the existing Van Arsdale Diversion facility to include a sealed connection to the new conveyance (requires a new reinforced concrete bulkhead).
  - Retrofit work would also include removal of the trashrack, inclined screens, screen support structure, and air sparging system.
  - All other equipment appurtenant to the existing facility would also be removed (e.g., the Archimedes screw pump, trashrake, fish bypass channel, control building, screen cleaning system compressors and air receiver, bypass valve motor operators, and rear gate and gate hoists).
  - The existing bulkhead gate and 5-ton gate hoist would be retained and protected.

Dewatering and Construction Sequencing

The Regional Entity's construction of the Facility will not interfere with or delay PG&E's deconstruction of Cape Horn Dam. Removal of Cape Horn Dam and construction of the Control Section with Pump Station could be completed in 12 to 18 months; construction sequencing will require stakeholder input and close coordination with the planning for Scott Dam removal. Dewatering and construction sequencing is in development and will be included in the Draft Final Surrender Application.

4.3.1.3 Roughened Channel with Gravity Supply

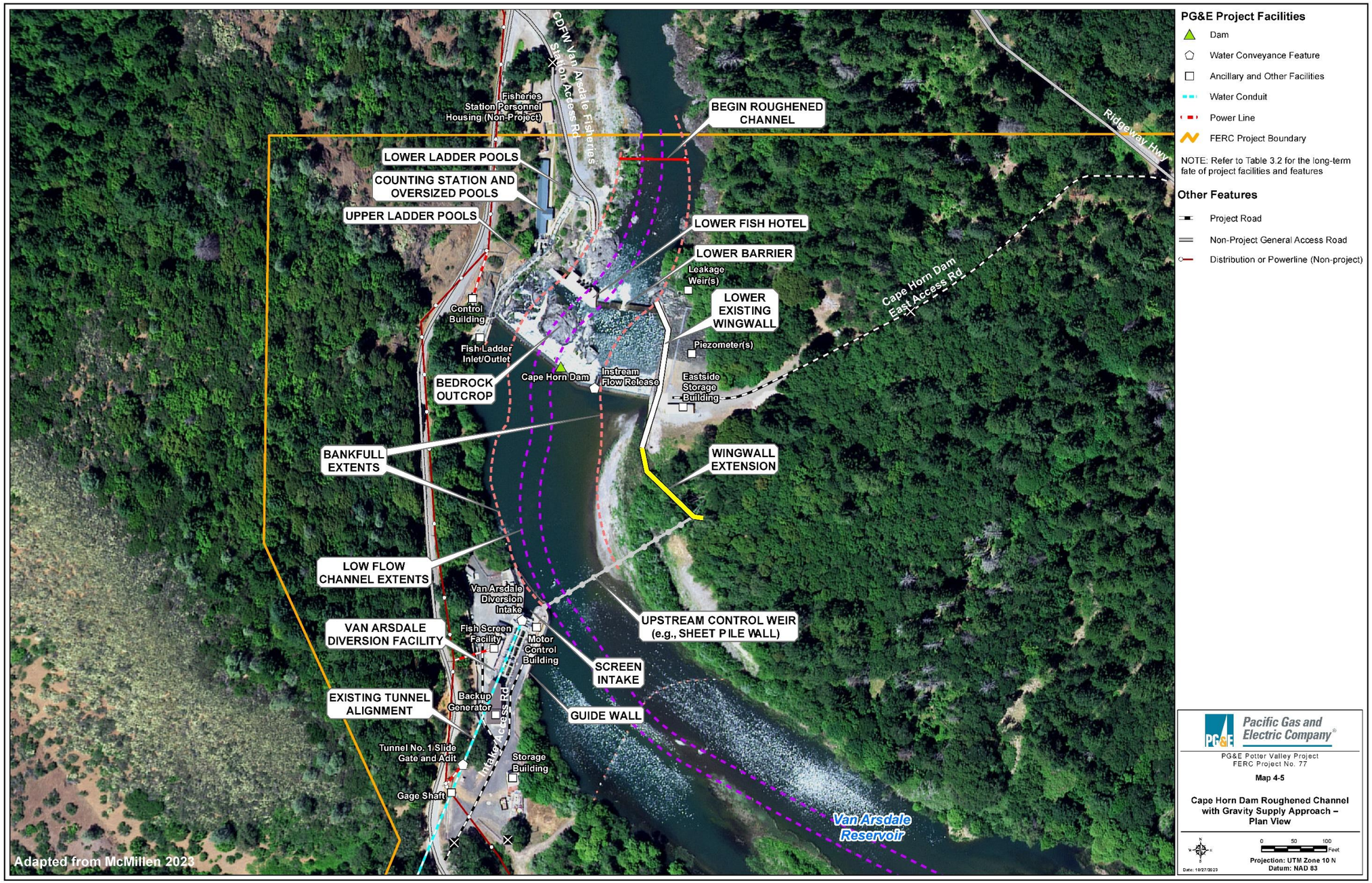
The Roughened Channel with Gravity Supply approach proposed by the Regional Entity (Alternative C-2 in McMillen Jacobs Associates 2021) entails substantial removal of the concrete gravity and earthfill portions of Cape Horn Dam and construction of a roughened channel and new diversion weir near the intake to the Van Arsdale Diversion facility. See Map 4-5, Figure 4-9, and Figure 4-10 for plan and section views of the proposed approach.

The roughened channel would include construction of a new river thalweg through the dam site, potentially removing bedrock while retaining dam foundation elements to achieve the target gradient and overall hydraulic objectives.

Depending on the final design and excavation plan (pending additional hydraulic modeling, geotechnical evaluation and consultation), the footprint of excavation and fill may be substantially larger than other approaches. The purpose of the roughened channel would be to a) allow for volitional passage of salmonids across the range of fish passage design flows, and b) maximize the amount of time that the intake screens are at least partially submerged.

Specifically, the Roughened Channel with Gravity Supply approach includes:

- Lowering part of the concrete gravity portion of Cape Horn Dam from elevation 1,494.0. (NAVD88) feet down to between elevation 1,455.0 and 1,460.0 feet.
- Lowering the fish hotel and exclusion barrier from a variable elevation down to between 1,450.0 feet and 1,455.0 feet.
- Constructing a roughened channel (total length between about 700 and 750 feet) starting approximately 225 to 250 feet downstream of the fish hotel/exclusion barrier and ending approximately 375 to 400 feet upstream of the dam.
  - The roughened channel would resemble a boulder cascade, with an average slope of approximately 3.0% and large rock material providing hydraulic complexity and channel stability sufficient to withstand extreme high-flow events.
  - The roughened channel would include a low-flow corridor (approximately 40 feet wide) that matches the existing channel at the downstream terminus and matches the low-flow section at the upstream terminus (upstream control weir).
  - Due to the length of roughened channel, vertical control cutoff walls (e.g., sheet pile; buried boulder) may be installed at two to three intermediate locations to arrest any headcut formations.
  - The design team will complete geotechnical and structural analysis for the proposed roughened channel to determine the final configuration and the engineering details associated with stability. The stability of the roughened channel bed material would be enhanced through the design process by undertaking sediment transport modeling and other measures to guide the specification for material size.
- Constructing an upstream control weir (sheet pile, concrete, or buried boulder) that spans the channel, connecting on river left to the existing diversion facility and on river-right to a reinforced concrete extension of the existing dam wingwall.
  - The upstream control weir would include a low-flow section approximately 40 feet wide with a minimum crest elevation between approximately 1,468.0 feet and 1,469.5 feet.
  - The upstream control weir would serve as a backwater control for a modified diversion structure.
  - Water conveyance to the East Branch Russian River would include the existing tunnel system and associated appurtenances.
  - Diversion of water into the existing diversion facility and water conveyance system would be through a series of new vertically adjustable fish screens (total capacity between 300 cfs and 350 cfs) mounted to the outside face of the existing Van Arsdale Diversion guidewall.



Map 4-5. Cape Horn Dam Roughened Channel with Gravity Supply Approach – Plan View.

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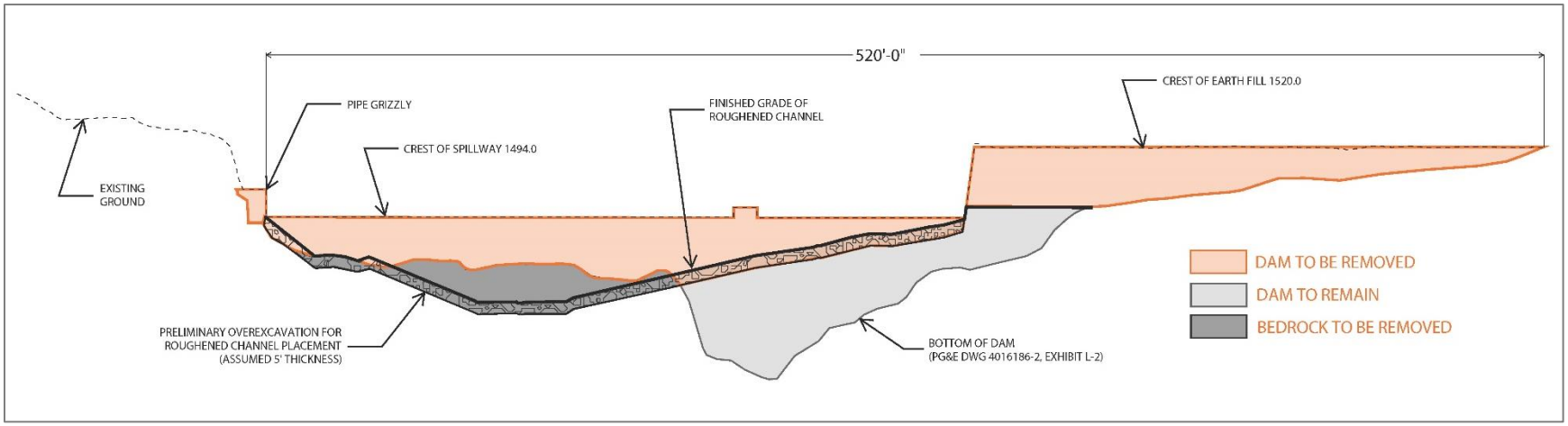

Figure 4-9. Cape Horn Dam Roughened Channel with Gravity Supply - Final Dam Removal (Cross Section Through Dam)

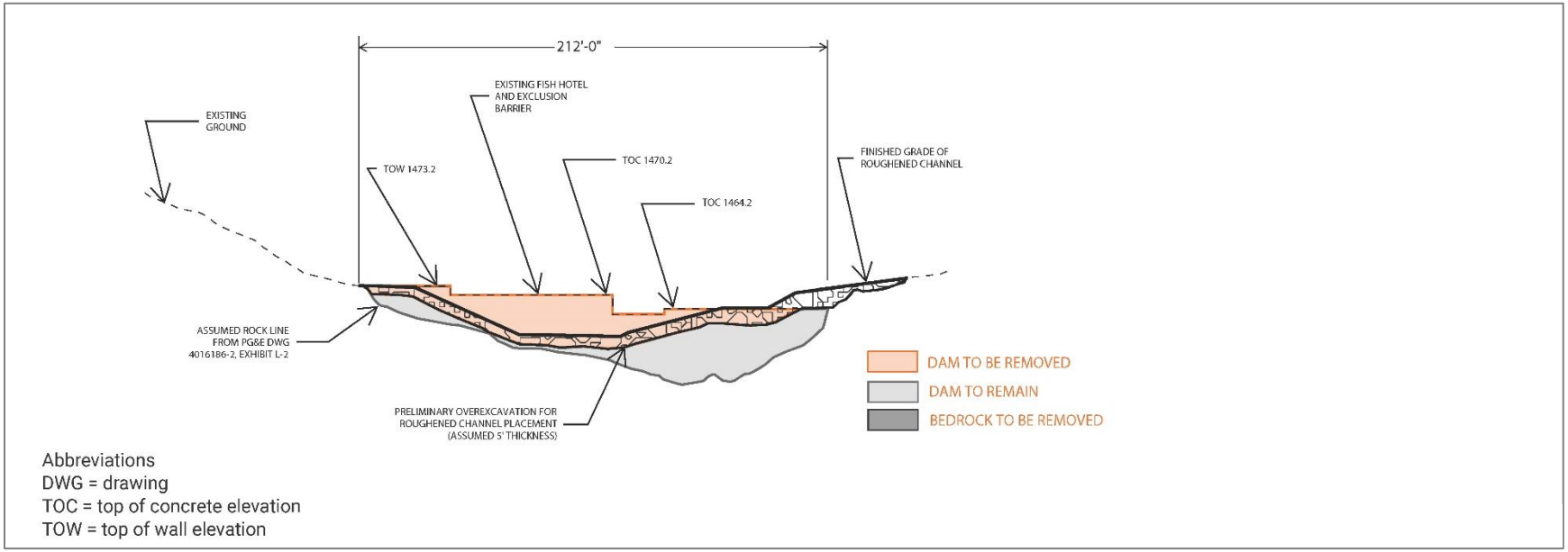

Figure 4-10. Cape Horn Dam Roughened Channel with Gravity Supply - Final Fish Hotel and Exclusion Barrier Removal (Cross Section Through Fish Hotel and Exclusion Barrier)

- Retrofit the interior of the existing diversion to include:
  - A new bulkhead wall to seal off the existing intake at the river.
  - Removal of the trashrack; inclined screens; screen support structure; air sparging system; and all other appurtenant equipment (e.g., the Archimedes screw pump, trashrake, fish bypass channel, bulkhead gate and 5-ton gate hoist, control building, screen cleaning system compressors and air receiver, bypass valve motor operators, and rear gate and gate hoists).
- Control equipment for the new screens and accompanying mechanical equipment.
- Use of a bladder dam or other surface elevation control structure to aid in sediment management and/or to help ensure surface diversion will be evaluated in the hydraulic modeling and design phases.
- Final dimensions of retained dam facilities and rock material for roughened channel will be evaluated in the hydraulic modeling and design phases.

Dewatering and Construction Sequencing

The Regional Entity's construction of the Facility will not interfere with or delay PG&E's deconstruction of Cape Horn Dam. Removal of Cape Horn Dam and construction of a new diversion and conveyance system could be completed in 12 to 18 months; construction sequencing will require stakeholder input and close coordination with the planning for Scott Dam removal. Dewatering and construction sequencing is in development and will be included in the Draft Final Surrender Application.

4.3.2 Van Arsdale Reservoir

Van Arsdale Reservoir will be drained as part of dam removal. Following removal of Cape Horn Dam, the former inundation zone of the reservoir will transition to a river channel. PG&E will restore the former inundation zone, including the historic river channel.

4.3.3 Other Associated Project Support Facilities and Features

PG&E has reviewed the associated Project support facilities and features in the Cape Horn Dam Area. Table 4-2 provides a summary of decommissioning of Project facilities and features in the Cape Horn Dam Area and associated land ownership. Decommissioning of Project facilities and features includes leaving the facility in place (L), partial removal of the facility with restoration (PR), removal of the facility with restoration (RR), and removal of the facility with no restoration (X).

Table 4-2. Decommissioning of Project Facilities and Features in the Cape Horn Dam Area.

Project Facility/Feature	Land Ownership	Decommissioning	
		Dam Removal	Control Section with Pump Station and Roughened Channel with Gravity Supply
Dam and Associated Facility/Features			
Cape Horn Dam	PG&E	RR	PR
Cape Horn Dam Instream Flow Release	PG&E	X	X
Reservoir			
Van Arsdale Reservoir	PG&E	RR	PR
Intake Structures			
Van Arsdale Diversion Intake	PG&E	L Remove trashrack; inclined screens; screen support structure; air sparging system; and all other appurtenant equipment Cap tunnel	L Remove trashrack; inclined screens; screen support structure; air sparging system; and all other appurtenant equipment
Tunnels and Adits			
Tunnel No. 1	PG&E	L Fill/cap tunnel	L
Tunnel No. 2	PG&E	L Fill/cap tunnel	L
Tunnel No. 1 Slide Gate and Adit	PG&E	L Remove gate Cap adit	L
Tunnel No. 1 Gage Shaft	PG&E	L Remove gage Cap shaft	L
Conduits, Penstocks, Control and Valve Houses			
Conduit No. 1 (Upper Wood Stave, Steel Pipe and Components)	PG&E	X	L
Conduit No. 2 (Lower Wood Stave, Steel Pipe and Components)	PG&E	X	L
Conduit No. 1, 72-inch Butterfly Valve House	PG&E	X	L
Conduit No. 1 Standpipe and Surge Chamber Vent	PG&E	L Remove standpipe Cap vent	L
Penstock No. 1	PG&E	L Cap penstock	L

Table 4-2. Decommissioning of Project Facilities and Features in the Cape Horn Dam Area (continued).			
		Decommissioning	
Project Facility/Feature	Land Ownership	Dam Removal	Control Section with Pump Station and Roughened Channel with Gravity Supply
Penstock No. 2	PG&E	L Cap penstock	L
Penstock Nos. 1 and 2, 60-inch Gate Valves (2)	PG&E	X	L
Penstock Bypass Channel	PRIVATE/ PG&E	L	L
Powerhouse Bypass System	PG&E	X	L
Powerhouse, Switchyard, and Tailrace			
Potter Valley Powerhouse	PG&E	L Disconnect equipment Remove fluids	L Disconnect equipment Remove fluids
Potter Valley Powerhouse Switchyard	PG&E	L Disconnect turbines	L Disconnect turbines/Retain station service transformers
Potter Valley Powerhouse Discharge Canal	PG&E/ PRIVATE	L	L
Diversion Gages			
E5 - Potter Valley Irrig CN E5 NR Potter Valley CA (11471105)	PG&E	X	L
E6 - Potter Valley Irrig CN E6 NR Potter Valley CA (11471106)	PG&E	X	L
E16 - Potter Valley PH Intake near Potter Valley CA (11471000)	PG&E	X	L
River Gages			
E11 - Eel River at Van Arsdale Dam near Potter Valley CA (11471500)	PG&E	L Remove equip	L
Leakage Weirs and Piezometers			
Cape Horn Dam Leakage Weirs	PG&E	X	L
Cape Horn Dam Piezometers	PG&E	L Cap piezometers	L

Table 4-2. Decommissioning of Project Facilities and Features in the Cape Horn Dam Area (continued)

Project Facility/Feature	Land Ownership	Decommissioning	
		Dam Removal	Control Section with Pump Station and Roughened Channel with Gravity Supply
Fish Screen and Associated Facilities			
Van Arsdale Fish Screen Facility	PG&E	X	L
Van Arsdale Fish Screen Facility Back-up Generator Building	PG&E	X	L
Van Arsdale Fish Screen Facility Motor Control Building	PG&E	X	L
Van Arsdale Fish Return Channel	PG&E	X	L
Storage Building	PG&E	X	L
Fish Ladder and Associated Facilities			
Cape Horn Dam Fish Ladder Inlet / Outlet	PG&E	X	X
Cape Horn Dam Fish Ladder	PG&E	X	X
Fish Attraction Facility	PG&E	X	PR
Cape Horn Dam Fish Ladder Rock Fall Fence	PG&E	X	X
Cape Horn Dam Fish Ladder Intake / Outlet Debris Boom	PG&E	X	X
Project Communication/Power Lines			
Conduit No. 1, 72-inch Butterfly Valve House Communication	PG&E	X	L
Cape Horn Dam Control Building Communication/Power Line	PG&E	X	L
Fish Screen Facility Communication/Power Line	PG&E	X	L
Tunnel No. 1 Slide Gate and Adit Communication/Power Line	PG&E	X	L
Penstock Nos. 1 and 2, 60-inch Stop Valves Communication/Power Line	PG&E	X	L
Helicopter Landing Sites			
Potter Valley Powerhouse Helicopter Landing Site	PG&E	L	L

Table 4-2. Decommissioning of Project Facilities and Features in the Cape Horn Dam Area (continued)

Project Facility/Feature	Land Ownership	Decommissioning	
		Dam Removal	Control Section with Pump Station and Roughened Channel with Gravity Supply
Ancillary and Support Facilities			
Potter Valley Powerhouse Operators Office	PG&E	X	L
Potter Valley Powerhouse Maintenance Office	PG&E	X	L
Potter Valley Powerhouse Operators Restrooms	PG&E	X	L
Project Facility Access Roads			
Cape Horn Dam East Access Rd	PG&E	L	L
Intake Access Rd	PG&E	L	L
Penstock, Pipeline and Butterfly Valve House Access Rd *(Access for private landowner)*	PRIVATE/ PG&E	L	L
Powerhouse Main Access Rd	PG&E	L	L
Project Facility Access Trails			
Gage E11 Access Trail	PG&E	L	L

5.0 REFERENCES

DSOD (Division of Safety of Dams). 2023. Scott Dam, No. 97-101, Lake County. Letter from Sharon K. Tapia, Department of Water Resources, to Jan Nimick, Pacific Gas and Electric Company. April 12, 2023.

FERC (Federal Energy Regulatory Commission). 1975. Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters and Lands of the United States. October.

FERC (Federal Energy Regulatory Commission). 1983. Opinion and Order Denying Appeal, Approving Settlement, and Issuing New License. October 4.

FERC (Federal Energy Regulatory Commission). 2004. Order Amending License. January 28.

GEI Consultants. 2020. 7th Part 12D Safety Inspection Report. Cape Horn Dam, State Dam No. 97-102. November 2020.

McMillen Jacobs Associates. 2021. Scott Dam and Cape Horn Dam Removal Alternatives Technical Memo. Prepared for Two-Basin Solution Partners, November 2021.

McMillen. 2023. Preliminary concept figures for Cape Horn Dam (October 2023).

NMFS (National Marine Fisheries Service). 2002. Biological Opinion for the Proposed License Amendment for the Potter Valley Project (FERC Project No. 77-110). Southwest Region. November 26.

PG&E (Pacific Gas and Electric Company). 1994. Potter Valley Project – FERC 77, Revised Exhibit M. November 7.

PG&E (Pacific Gas and Electric Company). 2017. Lake Pillsbury Bathymetric Survey – 2016. PG&E Applied Technology Services Report No. 026.11-16.3.

PG&E (Pacific Gas and Electric Company). 2023. Potter Valley Hydroelectric Project, FERC No. 77-CA, 2023 Flow Variance Request Due to Limited Storage Capacity. Letter from Janet Walther Senior Manager Hydro Licensing of PG&E to FERC. May 22, 2023.

Stillwater Sciences. 2021. Analysis of Fine Sediment Erosion Following the Proposed Scott Dam Removal, Eel River, California (unpublished draft). Prepared for Two-Basin Solution Partners, June 2021.

USSD (U.S. Society on Dams). 2015. Guidelines for Dam Decommissioning Projects. Prepared by the USDD Committee on Dam Decommissioning.

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