

WEBER HYDROELECTRIC PROJECT
(FERC No. 1744)

DRAFT APPLICATION FOR NEW LICENSE
FOR MAJOR CONSTRUCTED PROJECT LESS THAN 5MW

EXHIBIT A

PROJECT DESCRIPTION

AND

APPENDIX A: DETAILED PROJECT LOCATION MAPS



DECEMBER 2017

TABLE OF CONTENTS

1.0	PROJECT LOCATION.....	1
2.0	DESCRIPTION OF PROJECT §4.61 (C)(1).....	<u>04</u>
2.1	PROJECT FEATURES.....	<u>04</u>
2.1.1	Turbine Type §4.61 (c)(1)(i-ii).....	<u>04</u>
2.1.2	Description of Project Operation §4.61 (c)(1)(iii).....	<u>04</u>
2.1.2.1	Low Flow Operations.....	<u>15</u>
2.1.2.2	Proposed Project Operations.....	<u>15</u>
2.1.2.3	Annual Generation §4.61 (c)(1)(iv).....	<u>26</u>
2.1.3	Average Head §4.61 (c)(1)(v).....	<u>37</u>
2.1.4	Reservoir Surface Area and Storage Capacity §4.61 (c)(1)(vi).....	<u>47</u>
2.1.5	Hydraulic Capacity §4.61 (c)(1)(vii).....	<u>48</u>
2.1.6	Project Photos.....	<u>913</u>
2.1.6.1	Diversion Dam.....	<u>913</u>
2.1.6.2	Powerhouse.....	<u>1014</u>
2.1.6.3	Bypass Reach and Tailrace.....	<u>1216</u>
2.1.6.4	Appurtenant Facilities and Equipment.....	<u>1317</u>
2.2	PROJECT COSTS §4.61 (C)(1)(IX).....	<u>1418</u>
2.3	CAPITAL COSTS AND ESTIMATED O&M COSTS OF PROPOSED ENVIRONMENTAL MEASURES §4.61 (C)(1)(X).....	<u>1418</u>
2.3.1	Protection, Mitigation, and Enhancement Measures (PM&E).....	<u>1418</u>
3.0	PROJECT PURPOSE §4.61 (C)(2).....	<u>2428</u>
4.0	APPLICATION DEVELOPMENT COSTS §4.61 (C)(3).....	<u>2529</u>
5.0	ON-PEAK AND OFF-PEAK VALUES OF PROJECT §4.61 (C)(4).....	<u>2630</u>
6.0	ESTIMATED CHANGE IN PROJECT GENERATION §4.61 (C)(5).....	<u>2731</u>
7.0	UNDEPRECIATED NET INVESTMENT (BOOK VALUE) OF THE PROJECT §4.61 (C)(6).....	<u>2832</u>
8.0	ESTIMATED ANNUAL COST OF THE PROJECT §4.61 (C)(7).....	<u>2933</u>
9.0	SINGLE LINE ELECTRICAL DIAGRAM §4.61 (C)(8).....	<u>3135</u>
10.0	MEASURES TO ENSURE SAFE MANAGEMENT §4.61 (C)(9).....	<u>3236</u>
10.1	OWNER’S DAM SAFETY PROGRAM.....	<u>3236</u>
10.1.1	Emergency Action Plan.....	<u>3236</u>

10.1.2	Public Safety Plan.....	3236
10.1.3	Site Security.....	3337
10.1.4	Continuous Improvement	3337
10.2	ENVIRONMENTAL INSPECTION REPORT.....	3337

LIST OF TABLES

Table 1.	1966 – 2016 Average Monthly Generation Rate and Turbine Discharge ¹	37
Table 2.	Historical Monthly Generation Totals at the Weber Hydroelectric Project 2007-2016 (MWh)	37
Table 3.	Size, Capacity & Construction Materials of Structures	812
Table 4.	Estimated Capital and Operation and Maintenance (O&M) Costs for Potential Project Upgrades	1418
Table 5.	Existing PM&E Measures	1519
Table 6.	Proposed PM&E Measures	1620
Table 7.	Current and Proposed PM&E Measure Costs. Values are in 2017 dollars	1822
Table 8.	Project's Capitalized Expenses for Period of 44 Years	2933
Table 9.	Project's Capitalized Expenses for Period of 44 Years With Inflation	3034
Table 10.	Environmental Inspection Action Items 2017.....	3337

LIST OF FIGURES

Figure 1. Project Location Map.....	3
Figure 2. Daily Flow Duration Curve - Weber River at Gateway (Inflow Gage). Data from 1966 - 2016.	59
Figure 3. Monthly Flow Duration Curves - Weber River at Gateway (inflow gage). Note that the maximum flow on each axis is the maximum observed daily average flow for that month. Data from January 1, 1966 through December 31, 2016.	64 0
Figure 4. Alternative Monthly Flow Duration with Identical Axis for all Months.....	74 1
Figure 5. Weber Project Current Public Safety Plan.....	35 39
Figure 6. Public Safety Notifications Part 12 Signage at Powerhouse	36 40
Figure 7. Legend for Current Public Safety Plan	37 41

LIST OF PHOTOS

Photo 1. Diversion Dam	94 3
Photo 2. Diversion Dam and Intake Street Level View	94 3
Photo 3. Pipeline	104 4
Photo 4. Aerial View of Powerhouse and Substation (Substation is not part of the Project).....	114 5
Photo 5. Street Level View of Weber Substation (Not part of the Project) and Powerhouse.....	124 6
Photo 6. Bypass Reach to Powerhouse.....	124 6

LIST OF APPENDICES

Appendix A – Detailed Project Location Maps

**DRAFT APPLICATION FOR NEW LICENSE
FOR MAJOR CONSTRUCTED PROJECT LESS THAN 5 MW**

**WEBER HYDROELECTRIC PROJECT
(FERC No. 1744)**

PACIFICORP

**EXHIBIT A
PROJECT DESCRIPTION §4.61 (C)**

1.0 PROJECT LOCATION

PacifiCorp, a subsidiary of Berkshire Hathaway Energy, is the Licensee for the Weber Hydroelectric Project (FERC No. 1744) (Project). The Project is located in the northern portion of the State of Utah in a small area of Weber, Morgan, and Davis counties, approximately nine miles from the City of Ogden on the Weber River. The Project is partially located on lands managed by the Wasatch-Cache National Forest, and partially on lands owned by the Union Pacific Railroad Company. There are no Tribal reservations in the Federal Energy Regulatory Commission (FERC) Project Boundary. The U.S. Department of Agriculture Forest Service (USFS) manages approximately 15 acres within the proposed Project Boundary.

The exact names, addresses, telephone numbers, and email addresses of the Licensee's representatives are:

Mark Sturtevant, Managing Director
PacifiCorp–Renewable Resources
825 NE Multnomah, Suite 1500
Portland, OR 97232
Phone Number: 503-813-6680
mark.sturtevant@pacificorp.com

Todd Olson, Director of Compliance
PacifiCorp–Renewable Resources
825 NE Multnomah, Suite 1500
Portland, OR 97232
Phone Number: 503-813-6657
todd.olson@pacificorp.com

Eve Davies, Relicensing Program Manager
PacifiCorp—Renewable Resources
1407 W. North Temple, NTO 210
Salt Lake City, UT 84116
Phone Number: 801-220-2245
eve.davies@pacificorp.com

For the purposes of this document, the Project Boundary is defined as all lands and waters within the FERC Project Boundary (whether existing or proposed) for the Weber

Hydroelectric Project No. 1744, as denoted by the Project's Exhibit G. The Project Area is the area which contains all Project features (encompassing the FERC Project Boundary as defined above), and which extends out for the purposes of characterization and analysis from the furthest edge of the Project Boundary, and across the river to the far riverbank (including the river regardless of which side of the river the Project features are found), as shown in Figure 1. Where appropriate, the Area of Potential Effect (APE) is defined by resource as the lands and waters within a given vicinity, often an additional one-mile buffer, around the Project Area.

The location of the Project is shown in Figure 1. Detailed maps showing lands and waters both within the Project Boundary and the Project Area, land ownership, and Project facilities are provided in Appendix A.



2.0 DESCRIPTION OF PROJECT §4.61 (C)(1)

The Project was initially constructed in 1910 by Utah Light and Railway Company, which was acquired by a predecessor company and became part of Rocky Mountain Power and PacifiCorp (then Utah Power and Light) in 1915. The Project has a generating capacity of 3.85 megawatts (MW). The original license was made effective January 1, 1938 and expired June 30, 1970. Subsequently a FERC operating license was issued annually for a period from June 30, 1970 to June 28, 1990, due to a dispute with a nearby municipality that wanted to acquire the Weber Project. After a follow-up relicensing process with FERC, the current license was issued on June 28, 1990. It expires on May 31, 2020.

2.1 PROJECT FEATURES

The existing Project consists of a concrete diversion dam, two radial gates, a low-level outlet gate, an intake structure, a steel pipeline (encased in concrete for the first approximately 125 feet of its length), a powerhouse with one generating unit, a discharge pipe, a transmission line, and a ~~-(nonoperational)-~~ fish passage structure (historic and non-operational), ~~hereafter, also~~ referred to as the 'ice chute.'

2.1.1 Turbine Type §4.61 (c)(1)(i-ii)

The Project is operated through a single Horizontal Francis turbine with 5,000 horse-power ~~(HP)~~.

2.1.2 Description of Project Operation §4.61 (c)(1)(iii)

The Project is a run-of-river operation and is not used for daily peaking of generation. The current operating license was issued by the ~~Commission~~FERC in 1990 with a 30-year license term, expiring May 31, 2020. The ~~current~~ license does not specify any daily/seasonal ramping rates, flushing flows, reservoir operations, or flood control operations. Prior to 1993, the Project was manually operated locally. Following the installation of an automated control system in 1993, the Weber ~~Projectplant~~ is now designed to be capable of ~~for~~ unmanned semi-automatic operation and is controlled by a programmable logic controller ~~(PLC)~~. ~~The normal mode of operation is for the plant to be unattended.~~ Two local operators are located nearby in Ogden, Utah, and visit the Project daily and as dispatched by PacifiCorp's Hydro Control Center located in Ariel, Washington. However, the plant may at times be unattended. The Hydro Control Center monitors the Project operations remotely and notifies the local operators when an issue arises. In addition to standard local generator protection equipment and alarms, the penstock pressure, generator load, forebay level, and circuit breaker status at the Weber ~~Projectplant~~ are monitored by a hydro control operator at the Hydro Control Center. The Weber flowline can divert up to approximately 365 cubic feet per second (cfs) at the Project dam; the bypassed ~~ed~~ reach is approximately 1.7 miles long.

Below Downstream of the Weber diversion dam, the current license mandates a continuous minimum stream flow of 34 cfs or inflow, whichever is less, from October 1 - March 31 annually; and, a continuous minimum flow of 34-50 cfs (range dependent on the annual runoff forecast), or inflow, whichever is less, from April 1 - September 30 annually.

Annual maintenance is routinely conducted each year and involves vegetation management (including landscaping areas) on Project lands, recreation area maintenance and management (including seasonal portable restroom facilities), limited road maintenance activities, as-needed maintenance on the water conveyance system and generating unit, and non-routine forebay dredging. The timing and scope of annual maintenance activities are coordinated with the Wasatch-Cache National Forest during required annual consultation and as the need arises, as provided in the 1990 Weber license articles and in the Special-Use Permit issued for the Project by the USFS.

2.1.2.1 LOW FLOW OPERATIONS

The Weber Project functions in run-of-river mode under all operational conditions, but particularly during low flow operations when the forebay is emptied and the river channel carries water directly to and through the low-level outlet in the Weber dam (and spillway gates, as required). If the forebay falls four inches below the top of the spillway gate, turbine flows are reduced via automated pond level control. Flows are continually reduced until the unit shuts down, at which point all flow is passed through the minimum flow gate/ice chute (and spillway gates, as required). During winter months, the pond level controls are set to maintain a low water set point up to 12 inches below the normal pond level. For operation of the proposed future fish ladder, at times when the forebay elevation is lower than the inverted opening of the proposed fish ladder intake (or conditions exist that prevent the required 20 cfs flow into the proposed fish ladder), PacifiCorp has committed to keep the low-level gate operational, subject to operational constraints and requirements such as extreme winter icing conditions (PacifiCorp will undertake periodic maintenance as required to ensure operation). If the low-level gate is inoperable for 10 days or more due to extreme temperature or flow conditions, PacifiCorp will consult the specified members of the Fisheries Working Group (FWG) as required by the October 11, 2017 Memorandum of Agreement (MOA) regarding Proposed Protection, Mitigation and Enhancement (PM&E) measures and open the low-level gate as soon as possible ([also see Appendix PM&E of Exhibit E of this Draft License Application](#)).

2.1.2.2 PROPOSED PROJECT OPERATIONS

The Project will continue to operate as a run-of-the-river facility with new PM&E measures for potential recreation (boating) flows and a new proposed fish ladder slightly modifying the manner, but not the timing, of flow releases into the bypass reach. The Licensee PacifiCorp proposes to continue the existing minimum flow regime (34-50 cfs, depending on season and annual runoff forecast), although the minimum flow will be released through both the proposed fish ladder (20 cfs) as well as the existing ice chute

structure that would underlie the new fish ladder and release the remainder of the minimum flow (14-30 cfs).

The proposed fishway at the Project is a vertical slot fish ladder, with a design flow of 20 cfs. Any remaining minimum flows will be passed via the existing minimum flow gate/ice chute. The 20 cfs through the fishway would remain constant with the existing minimum flow gate being used to provide the flow adjustment required to accommodate the varying minimum flow requirement (34-50 cfs). To ensure that supplemental attraction flows through the [ice chute](#) ~~historic fish passage flume~~ provide the necessary attraction flow for fish passage, when needed, the south radial gate would be opened rather than the north radial gate (currently the north radial gate is opened; this change would require a new motor and controls on the south radial gate). In addition, in the event of a prolonged Project outage, PacifiCorp would keep the forebay full, if possible, to ensure continued fish ladder operation and consult with the specified members of the FWG as noted in the October 11, 2017 MOA regarding the Proposed PM&E measures.

The proposed recreation-related PM&E measure deals with supporting whitewater boating use of the bypass reach. If a safe and legal egress site is identified by the boating community, and agreed to by the USFS and PacifiCorp, PacifiCorp would provide boater flows to the bypass reach by curtailing generation (up to 320 cfs or inflow) for 4-hour segments on four Saturdays prior to July 15 annually. If undertaken, the exact schedule of this provision of boater flows would be determined in conjunction with American Whitewater, and coordinated with the USFS and Davis and Weber Counties Canal Company (DWCCC). Boater flows in the future may be subject to minimum boater use.

In all other respects, the Project operations described in this section would remain the same under the proposed action.

2.1.2.3 ANNUAL GENERATION §4.61 (C)(1)(IV)

The Project has an existing installed generating capacity of 3.85 MW. The average annual generation is 16,926 megawatt-hours (MWh). The average monthly generation is 1,411 MWh. PacifiCorp began collecting electronic records of Project generation and water outflow in 1966. Therefore, approximately 50 years of data (1966-2016) were used to calculate the values in Table 1, below. The table provides the average monthly generation rate (MWh) and turbine discharge (cfs) based on hourly data. The daily average generation and turbine discharge is highest in June (65.4 MWh/day, 1,961 MWh/30 days, 303 cfs) and lowest in November (613 MWh, 95 cfs). Winter flows and associated generation are affected by the seasonal diversion of water away from the lower Weber River resulting from the 1938 and 1965 Bureau of Reclamation contracts that can provide storage water to Deer Creek (and subsequently Jordanelle) and Echo Reservoirs during winter months. These contracts result in an average annual power generation increase of 5,246 additional MWh from the generation at the Bureau of Reclamation's Deer Creek Hydroelectric Facility during the time that water is diverted away from the

Weber Hydroelectric Project, for a total average annual generation of 22,307 MWh credited to the Weber Project.

Table 1. 1966 – 2016 Average Monthly Generation Rate and Turbine Discharge¹

Month	Generation (MWh)	Discharge (cfs)
January	838	125
February	883	145
March	1,430	214
April	1,742	269
May	1,981	296
June	1,961	303
July	1,982	296
August	1,954	292
September	1,754	271
October	1,095	164
November	613	95
December	692	103
¹ These averages include the approximate three-year period (1983 – 1985) that the Weber plant was offline due to a fire; the average annual generation with those years excluded is 750 MWh higher than shown above.		

Table 2. Historical Monthly Generation Totals at the Weber Hydroelectric Project 2007-2016 (MWh)

Month	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	AVERAGE
January	559	157	212	35	903	1,042	(15) ¹	(14)	(14)	-	287
February	628	301	307	85	1,846	391	(11)	(12)	(12)	71	359
March	1,743	1,210	1,489	508	2,200	1,657	285	(11)	(11)	1,221	1,029
April	2,069	1,875	2,051	1,661	2,193	2,024	744	(10)	334	1,956	1,490
May	2,069	2,240	1,322	2,210	2,277	2,057	1,864	(9)	1,814	2,254	1,810
June	2,196	2,254	2,157	2,263	2,230	2,123	1,748	(6)	1,635	2,090	1,869
July	2,122	2,318	2,307	2,276	2,283	2,152	1,688	1,237	2,021	2,115	2,052
August	2,133	2,252	2,329	2,254	2,253	1,702	1,431	2,011	1,930	1,934	2,023
September	1,800	2,212	2,129	2,037	2,188	1,351	1,152	1,768	1,822	1,440	1,790
October	999	1,294	700	1,069	2,176	601	46	100	422	501	791
November	97	179	111	160	1,246	13	(11)	(11)	(7)	44	182
December	68	178	40	758	2,071	(13)	(13)	(12)	(8)	-	307
Total Annual	16,483	16,470	15,154	15,316	23,866	15,100	8,908	5,031	9,926	13,626	13,989

¹ Negative values shown in parentheses

2.1.3 Average Head \$4.61 (c)(1)(v)

The estimated average head on the plant is 185 feet. There is no storage reservoir as the Project is operated at this Project as it is a run-of-river Project. The forebay area within the Project Boundary is 8.86 acres with a water surface area of 8.4 acres. The storage volume of the reservoir is 42 acre-feet.

2.1.4 Reservoir Surface Area and Storage Capacity §4.61 (c)(1)(vi)

The normal maximum water surface area and normal maximum water surface elevation ([above](#) mean sea level), and gross storage capacity of the Project impoundment (forebay) are:

Area	8.4 acres, maximum
Elevation	4,797.8 feet (dam crest)
Storage	Approximately 42 acre-feet

2.1.5 Hydraulic Capacity §4.61 (c)(1)(vii)

Minimum Hydraulic Capacity: The turbine can be operated to 9.0 kilowatts (kW)/0 cfs with either standard (automated mode) or manual operation.

Maximum Hydraulic Capacity: The Weber flowline can divert up to approximately 320 cfs (up to 365 cfs instantaneously) at the Project dam.¹

Estimated Dependable Capacity: 1,160 kW using the most recent 30-year period of record. For the purpose of this document, dependable capacity is based on the annual energy production during the driest year, 2002, of the 30-year period of record. The dependable capacity was based on the 2002 annual energy production divided by the number of hours per year.

Drainage Area: The Weber River Basin drains an area of 2,476 square miles in Summit, Morgan, Weber, and Davis Counties, Utah, and part of Uinta County, Wyoming. The primary drainage of the basin, the Weber River, begins its journey near Reids Peak (11,708 feet) in the Uinta Mountains, flows west to Oakley, Utah, and then flows in a northwesterly direction to its terminus at Great Salt Lake. The Weber River is approximately 125 miles long, and within its drainage there are approximately 968 miles of perennial streams and 1,254 miles of intermittent streams (Utah Water Atlas 2015). Flows in the Weber River Basin are regulated by seven major reservoirs. Echo and Rockport Reservoirs are located on the mainstem of the Weber River, whereas Pineview, Causey, East Canyon, Lost Creek, and Smith & Morehouse Reservoirs are located on tributaries.

Flow duration curves can be found below in Figures 2, 3, and 4.

¹ 1938 and 1965 agreements and existing water rights: 35-8061—365 cfs flow right, 35-8062—100 af storage, 35-8741— af storage in Echo.

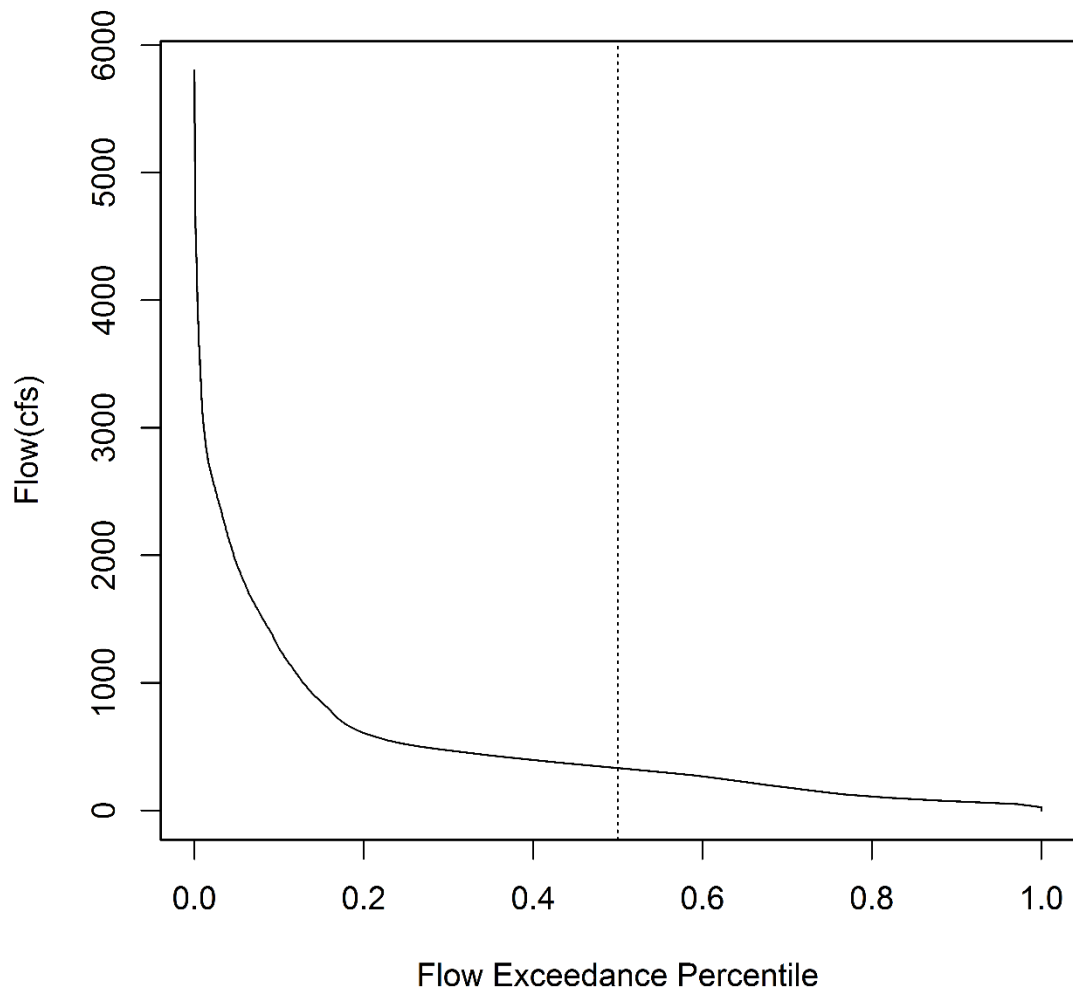


Figure 2. Daily Flow Duration Curve - Weber River at Gateway (Inflow Gage). Data from 1966 - 2016.

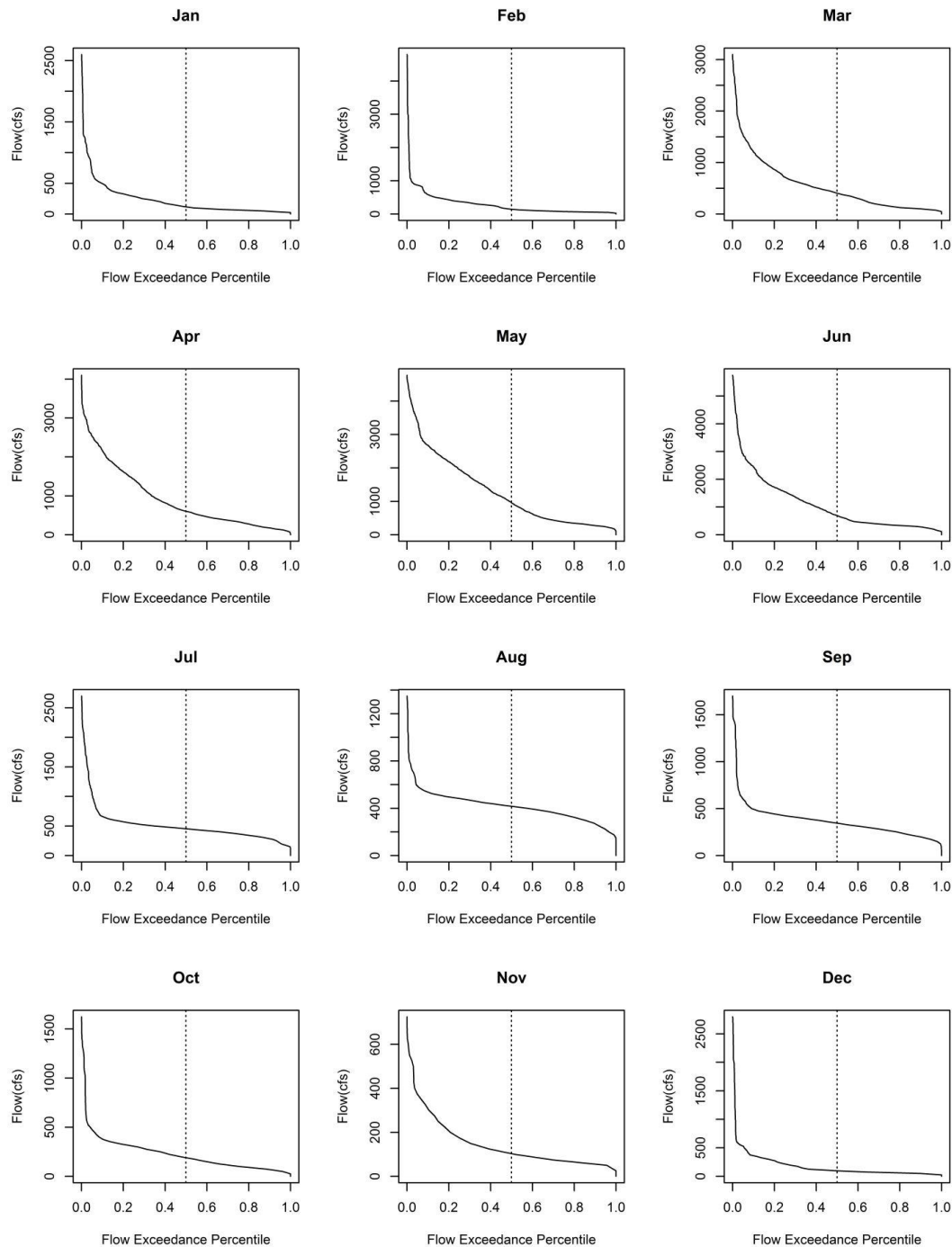


Figure 3. Monthly Flow Duration Curves - Weber River at Gateway (inflow gage). Note that the maximum flow on each axis is the maximum observed daily average flow for that month. Data from January 1, 1966 through December 31, 2016.

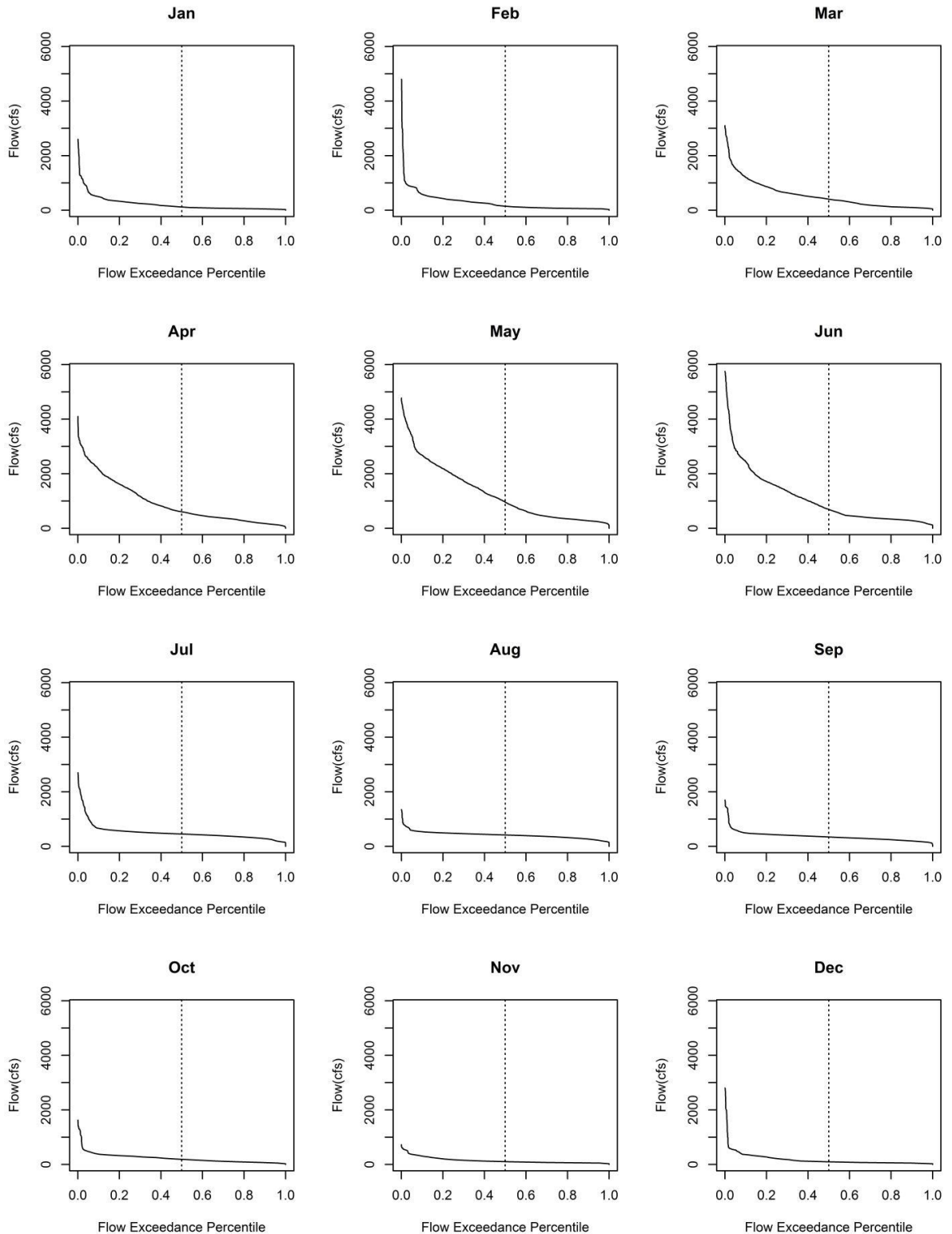


Figure 4. Alternative Monthly Flow Duration with Identical Axis for all Months

2.1.6 Size, Capacity & Construction Materials of Structures §4.61 (c)(1)(viii)

Table 3 details size and construction material information of Weber Project structures.

Table 3. Size, Capacity & Construction Materials of Structures ~~§4.61 (c)(1)(viii)~~

Equipment/Structure	Dimensions	Capacity	Construction Materials
Diversion Dam	27 ft. high by 79 ft. wide by 114 feet long; crest elevation of 4,797.8 ft. above mean sea level (msl)	42 acre-feet	Concrete
Radial Gates (2)	29 ft. wide	N/A	Steel-original
Intake Structure	20 ft. wide by 27 ft. long	N/A	Concrete and wood building
Trash Racks	18.6 ft. wide by 14.6 ft. high with 2-inch clear spacing	N/A	Steel
Pipeline	9,110 ft. long by 5.5 ft. to 6.3 ft. diameter	N/A	Steel and steel encased in concrete
Fish Passage Structure (non-operational)	3 ft. wide by 18 ft. long	N/A	Concrete
Generator	Rated at 1.0 power factor, 360 rpm, three-phase, 60 cycles, and 2,300 volts, under 185-ft head.	3,850 kW	Steel
Powerhouse	73.5 ft. long by 56.4 ft. wide	3.85 MW	Brick and concrete
Turbine	N/A	3,850 kW generating unit (5,000 HP) operating under a head of 185 ft.	Steel
Discharge Pipeline (Draft tube)	N/A	N/A	Steel
Transmission Line	77 ft. long	46 kilovolts (kV)	Steel tower and wire

2.1.6.1.7 Project Photos

2.1.6.1.7.1 DIVERSION DAM

The diversion dam is constructed of concrete and is 27 feet high and 114 feet long (Photo 1 and 2).



Photo 1. Diversion Dam



Photo 2. Diversion Dam and Intake Street Level View

The intake structure, located in the white building ~~shown in Photo 2, in photo above,~~ measures approximately 27 feet long and 20 feet wide. Trash racks are located slightly upstream of the intake to ensure debris does not enter the pipeline. Water is diverted from the Weber River into the intake structure, and continues down the pipeline. The approximately 1.7-mile-long pipeline (approximately 9,110 feet long) is located partially on land owned by the Union Pacific Railroad, and partially on land managed by the USFS. The pipeline is constructed of concrete and steel (~~Photo 3~~~~Photo-3~~). The width ~~ranges from~~~~is~~ 5.5 to 6.3 feet. The intake structure is located on the dam between the low-level gate and the south buttress wall, housed in a small wood frame intake house. A one-story wood-frame watchman's house (currently unused, and proposed for removal as part of the potential intake modernization project listed in Table 4~~3~~) is located just downstream from the intake house, and is joined to the intake house. The ~~power plant~~ intake diverts flow into conduit~~is~~ a 74-inch-diameter reinforced concrete pipe for the first 125 feet, transitioning to a welded steel pipe. This replaced 2,000 feet of concrete pipe and 7,075 feet of wood stave pipe in 1949. The ~~conduit~~~~pipeline~~ is buried along most of its length. It crosses the river on a 99-foot-span riveted steel Howe truss bridge made by the American Bridge Company downstream from the dam.

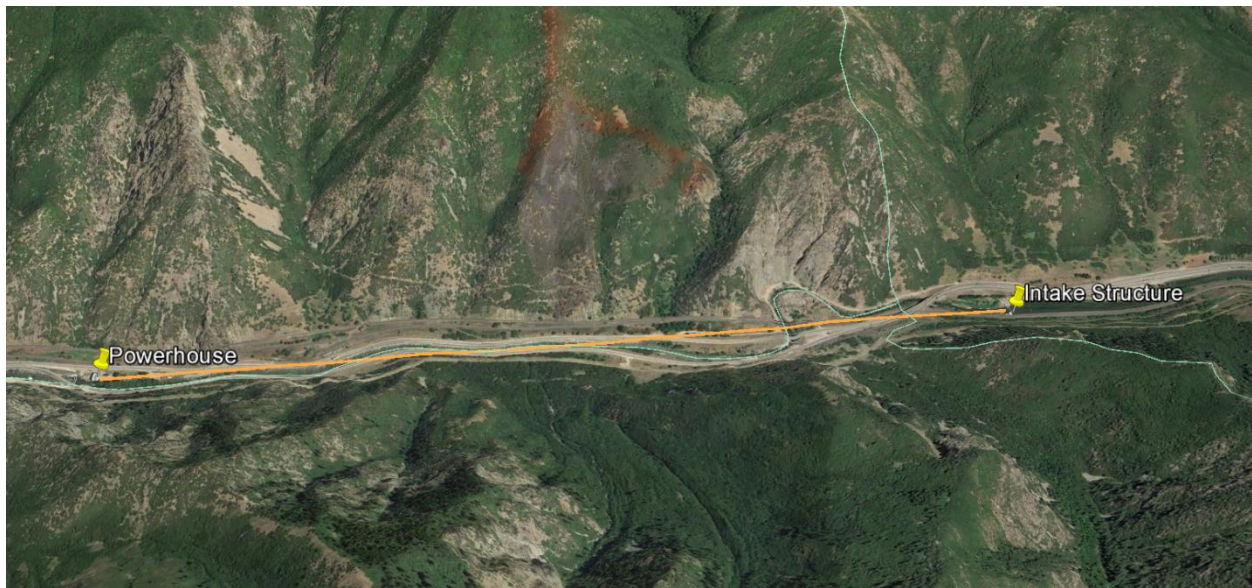


Photo 3. Pipeline

2.1.6.22.1.7.2 POWERHOUSE

The powerhouse, associated cottages, and diversion dam occupy land managed by the USFS. The 46-kV transmission line is approximately 77 feet long. The dam is located approximately 1.7 miles upstream from the powerhouse. The powerhouse discharges into the Weber River, as shown in Photo 4. The powerhouse (Photo 4 and Photo 5) is approximately 73.5 feet long by 56.4 feet wide, and 29 feet in height to the top of the concrete parapet wall (does not include the height of the stepped roof detail). The powerhouse is a rectangular brick building with a gabled concrete roof supported by

riveted steel Fink trusses. The end walls are five bays wide with stepped parapets at the gables. Original window openings have been bricked in. Side elevations are three bays wide, also with infilled window openings. The structure sits on a concrete foundation. Because of its location above the river and next to Interstate 84, it is more visible than the diversion dam and other developed components of the Project Area.

The powerhouse contains a generating unit with a rated capacity of 3,850 kW operating under a head of 185 feet producing a 50-year average annual energy output of 16,926 MWh. The generating unit was manufactured in 1909-[1910](#).



Photo 4. Aerial View of Powerhouse and Substation (Substation is not part of the Project)

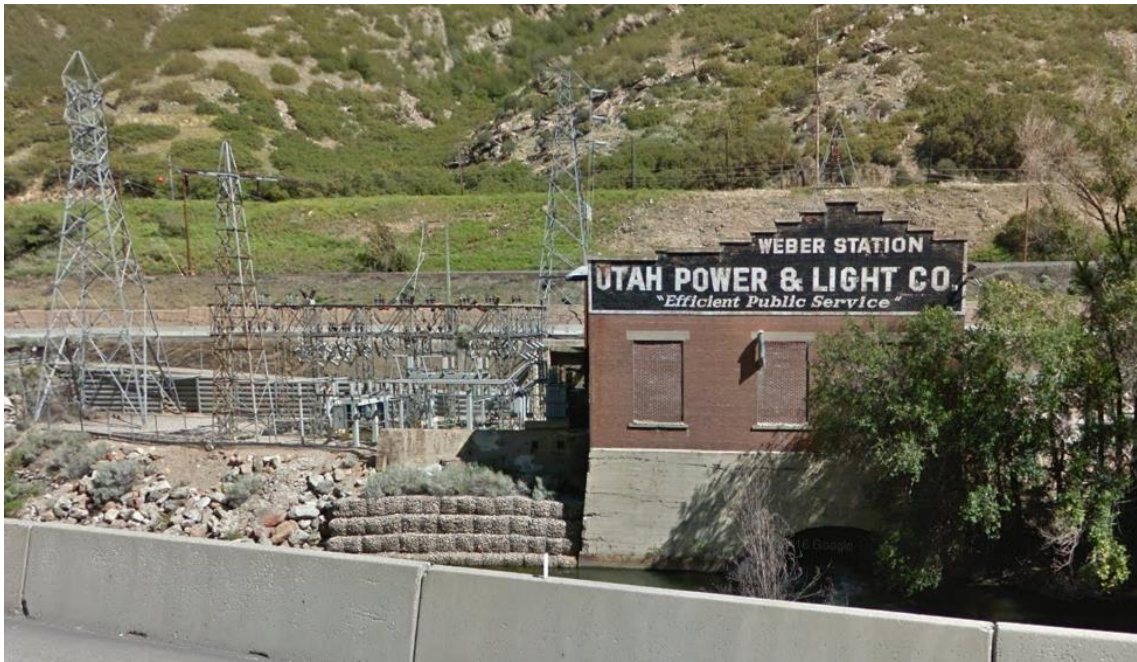


Photo 5. Street Level View of Weber Substation (Not part of the Project) and Powerhouse

2.1.6.32.1.7.3 BYPASS REACH AND TAILRACE

The bypass reach is the portion of the Weber Riverstream where water is removed from the river between the diversion dam and powerhouse. that is bypassed by a Project feature, in this case, the pipeline. The bypassed reach of the stream begins after the intake structure upstream (Photo 6). The Project bypass reach is approximately two miles long and the upper portion is frequently used by anglers. The bypass reach endsterminates where the water enters the powerhouse downstream and is returned to the Weber River. The discharge area is approximately 16 feet wide.



Photo 6. Bypass Reach to Powerhouse

2.1.6.42.1.7.4 APPURTENANT FACILITIES AND EQUIPMENT

Plant operators' cottages were built near the Weber powerhouse approximately 1.7 miles downstream of the Weber diversion dam. [The entire area, including the plant powerhouse, associated substation, cottages, and associated outbuildings is listed on the National Register of Historic Places as an historic district. Originally known as Devil's Gate \(Register No. 89000276\), it is now known as the Weber Hydroelectric Plant District.](#)

One section of the flowline, near the Weber powerhouse, was subsequently placed in a three-sided concrete box culvert under the [westbound](#) lanes of Interstate 84 when the freeway was constructed in the 1960s.

2.2 PROJECT COSTS §4.61 (C)(1)(IX)

Table 4. Estimated Capital and Operation and Maintenance (O&M) Costs for Potential Project Upgrades

Year	Upgrades	Capital	O&M
2021	Weber Intake Modernization	\$1,768,000	n/a
2022-2025	Owner's Dam Safety Program Analysis and Implementation	\$115,000	\$50,000 periodically; \$400,000 life-of-license total
2022	Weber Butterfly Valve and Penstock Section	\$640,000	n/a
2022	Weber Penstock Support Structure Upgrade (aka Trestle Work)	\$219,000	n/a
2022	Weber Pipeline River Crossing Recoat	\$186,000	n/a
2024	Weber #2 House Removal	\$28,000	n/a
2025	Cathodic Protection	\$691,000	n/a
2029	Weber Penstock and Gate Painting	\$430,000	n/a
2030	Weber Journal Bearing Re-rabbiting	\$59,000	n/a
2030	Weber Flow Monitor Replacement	\$323,000	n/a
2034	Weber Powerhouse Roof Replacement	\$86,000	n/a
2034	Weber Relay Replacement	\$323,000	n/a
Annual	Operations and Maintenance Existing O&M		\$274,000/year \$12,039,000 life-of-license total
Various	Small Projects	\$288,000	n/a

2.3 CAPITAL COSTS AND ESTIMATED O&M COSTS OF PROPOSED ENVIRONMENTAL MEASURES §4.61 (C)(1)(X)

2.3.1 Protection, Mitigation, and Enhancement Measures (PM&E)

PacifiCorp's Proposed PM&E strategies focus on preserving areas in the watershed that are ecologically important. In situations where habitat impacts are unavoidable and cannot be recovered, PacifiCorp's mitigation strategies have been employed to offset the losses. In cases when a change to the environment occurs, enhancement can help alleviate the effects. Table 5 describes PacifiCorp's current PM&E measures.

Table 5. Existing PM&E Measures

Resource	Environmental Measure	License Article or Other Reference	Compliance History
Fisheries and Aquatic Resources	Maintain required 34-50 cfs minimum stream flow for the bypassed reach of the river affected by the Project.	Article 401	Variances average less than once/year, reported to FERC as they have occurred
	Operational measures to reduce impacts to aquatic resources, such as minimizing sediment release during forebay elevation changes, and not flushing sediment from the Project forebay.	Voluntary	Full compliance
Botanical Resources	Annual consultation with the USFS regarding any planned maintenance or operational measures that would involve ground-disturbing activities.	Article 104	Full compliance
	Annual weed control around the Project recreation site, dam and flowline intake, and powerhouse/cottage area.	Voluntary	Full compliance
Terrestrial Wildlife Resources	Annual consultation with the USFS regarding any planned maintenance or operational measures that could impact wildlife habitat.	Article 104	Full compliance
Cultural Resources	Implementation of a Cultural Resources Management Plan.	Article 403	Full compliance
Recreation Resources	Construction (completed in 1992) and maintenance of the existing recreation site consisting of the following: a paved parking area, five picnic tables, a grassy area, fishing access to the Weber River belowdownstream of the dam, fishing access to the forebay with a handicapped-accessible platform, and a portable toilet that is available on a seasonal basis.	Article 405	Full compliance

[6 details proposed PM&E measures under the new License. All existing PM&E measures \(those shown in Table 5 are also part of the proposed mitigation measures. Table 7 details the costs of both the existing and proposed mitigation measures. All Weber relicensing stakeholders signed a Memorandum of Agreement regarding the Proposed PM&E measures, with the exception of the Utah Department of Environmental Quality - Division of Water Quality \(UDEQ-DWQ\), who instead sent a letter of support for the proposed PM&E measures \(also see Appendix MOA\)](#)

Table 6. Proposed PM&E Measures

Resource	Proposed PM&E Measure
Geology and Soils	None.
Water Resources (Hydrology)	HYD-1: Continue existing seasonally-adjusted minimum stream flows (34-50 cfs). Implement annual change, if needed, in required minimum streamflow within 10 days of the final Weber River runoff forecast from Natural Resources Conservation Service (NRCS), using the current formula.
Water Resources (Water Rights)	No PM&E measure is proposed because existing 1938 and 1965 agreements and existing water rights [35-8061—365 cfs flow right, 35-8062—100 af storage, 35-8741—af storage in Echo] will remain unchanged.
Water Resources (Water Quality)	No PM&E measure is proposed because adherence to existing O&M practices is protective of the resource (state water quality standards are being met).
Fisheries and Aquatic Resources	<p>FISH-1: Continue to provide minimum stream flow for the bypassed reach of the river affected by the Weber Project (identical to HYD-1, above).</p> <p>FISH-2: Construct, operate, and maintain a fish ladder suitable for upstream passage of both Bonneville Cutthroat Trout (BCT) and Bluehead Sucker, including a fish trap operated by Utah Division of Wildlife Resources (UDWR) and Trout Unlimited (TU) and maintained by PacifiCorp. PacifiCorp will consult annually with UDWR, TU, and USFS related to fish ladder and trap operation and maintenance according to a Communication Plan developed between UDWR, TU, USFS, U.S. Fish and Wildlife Service (FWS) and PacifiCorp. The Communication Plan will also specify group contacts, alternates, and contact methods over the life of the license.</p> <p>FISH-3: Keep the low-level gate operational when forebay is dewatered subject to operational constraints and requirements such as extreme winter icing conditions (undertake periodic maintenance as required to ensure operation). If the forebay is dewatered and the low-level gate is inoperable for more than 10 days due to extreme temperature or flow conditions, PacifiCorp will consult with UDWR, TU, FWS, Utah Division of Water Quality (UDWQ), and USFS (per the Communication Plan methods) and open the low-level gate as soon as possible.</p> <p>FISH-4: In the event of a prolonged Project outage, keep forebay full if possible to ensure fish ladder operation; PacifiCorp will consult with UDWR, TU, FWS, UDWQ, and USFS (per the Communication Plan methods) to discuss fishway operation during any interim periods exceeding 10 days when neither the low-level gate nor the fishway are operable.</p>
Botanical Resources	<p>BOT-1: Continue existing annual USFS consultation.</p> <p>BOT-2: Conduct weed control per historic practice, adding the area abutting improved Project river access point in riparian habitat (see REC-8, below), subject to landowner weed control requirements and constraints.</p>
Terrestrial Wildlife Resources	WL-1: Continue existing annual USFS consultation.
Cultural and Tribal Resources	CULT-1: Finalize and implement the Historic Properties Management Plan (HPMP) (formerly approved as the Cultural Resources Management Plan [CRMP]).
Recreation Resources	<p>REC-1: Continue to maintain the existing Weber Recreation Site, but with modifications outlined below.</p> <p>REC-2: Coordinate with USFS, UDWR, TU, UDWQ, FWS, and American Whitewater (AW) on improved interpretive signage; include potential for improved technology to include a code that is scan-able and that links to flow information (REC-3). Install signage instructing visitors on dog waste protocol and provide dog waste bags for disposal.</p> <p>REC-3: Create a web-page hosted and maintained by PacifiCorp (linked on both the Corporate web-site and the Project web-site) indicating approximate bypass reach flows (program subtracts generation flow from U.S. Geological Survey (USGS) gage site flow and posts it to website)—when minimum streamflow only, the calculated number will be replaced by the phrase “minimum streamflow of approximately 50 cfs or inflow” to eliminate the risk of showing a calculated flow that could be less than the minimum for that period.</p> <p>REC-4: Install and maintain a year-round permanent vault Americans with Disabilities Act (ADA)/Architectural Barriers Act (ABA)-compliant toilet facility (flush bathrooms are available at the Utah Department of Transportation (UDOT) rest stop upstream).</p>

Resource	Proposed PM&E Measure
	<p>REC-5: Consult with USFS to create a new ADA/ABA-compliant accessible picnic site on flat lawn area closest to parking lot (consisting of a concrete pad, a grill, and an accessible picnic table), or to modify the existing site per USFS standards.</p> <p>REC-6: Maintain/repave access road to Weber Recreation Site and existing asphalt path in picnic area.</p> <p>REC-7: Reconfigure former sandbox area fencing to remove south, east, and west portions (retain north portion to partition recreation site from I-84).</p> <p>REC-8: Improve two existing user-created trails located in and outside the Weber FERC Project Boundary:</p> <ol style="list-style-type: none"> In the Project Boundary, improve (construct steps) the existing dirt river access trail at the west end of the recreation site; Outside the Project Boundary, provide \$30,000 through an off-license agreement with TU to fund cooperative effort to improve pedestrian river access (with concurrence from UDOT and the underlying land owner) at the under-freeway user-created trail extending west from the Weber Recreation Site. Proposed improvements would involve breaking up the existing large-boulder surface or backfilling this surface to create a navigable path of smaller rock with minimal width (no paving). Funds provided through the off-license agreement may be used by TU to provide another habitat benefit in the watershed in the event that improving pedestrian river access in the indicated location is infeasible or requires less funding than provided through the agreement. <p>REC-9: Support whitewater boating use of bypass reach: If AW can identify access which it believes to be safe and legal, the USFS and Davis and Weber Counties Canal Company (DWCCC) agree to review the proposed access and the items and improvements needed for safe use, such as but not limited to signage, steps for the portage area, and hazard mitigation. If the USFS agrees, in its sole discretion, that the proposed access is appropriate for public use, PacifiCorp will annually provide boater flows to the bypass reach by curtailing generation (up to 320 cfs or inflow) for 4-hour segments on four Saturdays prior to July 15. Flow schedule and notice to be determined in conjunction with AW, and in coordination with DWCCC and USFS, with the provision that boater flows in the future may be subject to minimum boater use (fewer than a minimum threshold of boaters may result in suspension of boater flows). Specific use triggers and related release changes to be determined.</p>
Land Use	None.
Aesthetic Resources	None.
Socioeconomic Resources	None.

Table 7. Current and Proposed PM&E Measure Costs. Values are in 2017 dollars

Resource Area	Current PM&E	Proposed PM&E	Capital Costs of Proposed PM&E	O&M Costs of Proposed PM&E
Water Resources and Hydrology	Bypass Reach Minimum Flow			
	<i>Continuous minimum stream flow of 34 cfs or inflow, whichever is less, from October 1-March 31 annually; and, a continuous minimum flow of 34-50 cfs (range dependent on the annual runoff forecast), or inflow, whichever is less, from April 1-September 30 annually.</i>	HYD-1 and FISH-1: Continue existing seasonally-adjusted minimum stream flows (34-50 cfs). Implement annual change, if needed, in required minimum streamflow within 10 days of the final Weber River runoff forecast from NRCS, using the current formula.	N/A	\$1 299 6,000 annually; valued at \$5,440,000 total over the life of the new license. Levelized cost of this lost generation is \$6.04/MWh
Fisheries and Aquatic Resources	Upstream Fish Ladder			
	N/A	FISH-2: Construct, operate, and maintain a fish ladder suitable for upstream passage of both BCT and Bluehead Sucker, including a fish trap operated by UDWR and TU and maintained by PacifiCorp. PacifiCorp will consult annually with UDWR, TU, and USFS related to fish ladder and trap operation and maintenance according to a Communication Plan developed between UDWR, TU, USFS, FWS and PacifiCorp. The Communication Plan will also specify group contacts, alternates, and contact methods over the life of the license.	\$2,889,000	\$5,000 annually for facility maintenance; \$185,000 total over the life of the license
	Low Level Gate Operation			
	<i>This measure is in effect when forebay is dewatered to allow fish passage.</i>	FISH-3: Keep the low-level gate operational to allow fish passage when forebay is dewatered, subject to operational constraints and requirements such as extreme winter icing conditions (undertake periodic maintenance as required to ensure operation). If the forebay is dewatered and the low-level gate is inoperable for more than 10 days due to extreme temperature or flow conditions, PacifiCorp will consult with UDWR, TU, FWS, UDWQ, and	\$65,000	\$40,000 periodically; \$160,000 total over the life of the license

Resource Area	Current PM&E	Proposed PM&E	Capital Costs of Proposed PM&E	O&M Costs of Proposed PM&E
Fisheries and Aquatic Resources (continued)		USFS and open the low-level gate as soon as possible.		
	Project Operation During Prolonged Outages			
	N/A	FISH-4: In the event of a prolonged Project outage, keep forebay full if possible to ensure fish ladder operation; PacifiCorp will consult with UDWR, TU, FWS, UDWQ, and USFS (per the Communication Plan methods) to discuss fishway operation during any interim periods exceeding 10 days when neither the low-level gate nor the fishway are operable.	\$0	\$1,000 annually; \$44,000 total over the life of the license
Vegetation and Botanical Resources	Annual Consultation			
	<i>Meet each year with the USFS to review any planned maintenance or operational measures that would involve ground-disturbing activities.</i>	BOT-1: Continue existing annual USFS consultation	\$0	\$2,000 annually; \$78,000 total over the life of the (includes costs for WL-1, below)
	Annual Weed Control			
	<i>Complete weed management activities around the Project recreation site, dam and flowline intake, and powerhouse/cottage area.</i>	BOT-2: Conduct weed control per historic practice, adding the area abutting improved Project river access point in riparian habitat (see REC-8, below), subject to landowner weed control requirements and constraints.	\$0	\$2,000 annually; \$76,000 total over the life of the license
Terrestrial and Wildlife Resources	Annual Consultation			
	<i>Meet each year with the USFS to review any planned maintenance or operational measures that could impact wildlife habitat.</i>	WL-1: Continue existing annual USFS consultation.	\$0	\$0 additional (included as part of BOT-1, above)
Cultural and Tribal Resources	Cultural Resources Management Plan (CRMP)			
	<i>Plan currently serves to identify, evaluate, document, register, and establish basic information about known and discovered cultural resources so that proper planning</i>	CULT-1: Finalize and implement the updated HPMP (formerly approved as the CRMP).	\$6,000	\$15,000 total over the life of the license

Resource Area	Current PM&E	Proposed PM&E	Capital Costs of Proposed PM&E	O&M Costs of Proposed PM&E
	<i>can take place to protect cultural and historic resources and provide stewardship to these resources.</i>			
Recreational Resources	Day-Use Site			
	<i>Construction (completed in 1992) and maintenance of the existing recreation site consisting of the following: a paved parking area, five picnic tables, a grassy area, fishing access to the Weber River downstream of the dam, fishing access to the forebay with a handicapped-accessible platform, and a portable toilet that is available on a seasonal basis</i>	REC-1: Continue to maintain the existing Weber Recreation Site, but with modifications outlined below.	\$0	Included in O&M costs in Table 43 , above
	Interpretive Signs at Recreation Site			
	<i>Signs are posted and include required FERC Form 80 signage, site rules and regulations, and some additional interpretive signage.</i>	REC-2: Coordinate with USFS, UDWR, TU, UDWQ, FWS, and AW on improved interpretive signage; include potential for improved technology to include a code that is scan-able and that links to flow information (REC-3). Install signage instructing visitors on dog waste protocol and provide dog waste bags for disposal.	\$15,000	\$25,000
	Website Outreach			
	N/A	REC-3: Create a web-page hosted and maintained by PacifiCorp (linked on both the Corporate web site and the Project web site) indicating approximate bypass reach flows (program subtracts generation flow from USGS gage site flow and posts it to website)—when minimum streamflow only, the calculated number will be replaced by the phrase “minimum streamflow of approximately 50 cfs or inflow” to eliminate the risk of showing a	\$20,000	\$0

Resource Area	Current PM&E	Proposed PM&E	Capital Costs of Proposed PM&E	O&M Costs of Proposed PM&E
Recreational Resources (continued)		calculated flow that could be less than the minimum for that period.		
	Restroom			
	<i>Maintain seasonal restroom facilities (currently these are portable restrooms) at Weber Recreation Site.</i>	REC-4: Install and maintain a year-round permanent vault ADA/ABA-compliant toilet facility (flush bathrooms are available at the UDOT rest stop upstream).	\$64,000	Included in O&M costs in Table 43, above
	ADA-Compliant Access			
	<i>Some ADA access provided at Weber Recreation Site, although standards have changed since 1992 installation.</i>	REC-5: Consult with USFS to create a new ADA/ABA-compliant accessible picnic site on flat lawn area closest to parking lot (consisting of a concrete pad, a grill, and an accessible picnic table), or to modify the existing site per current USFS standards.	\$20,000	\$0 (maintained with overall recreation site)
	Access Road and Path			
	<i>This PM&E measure was implemented as part of original recreation site construction in 1992.</i>	REC-6: Maintain/repave access road to Weber Recreation Site and existing asphalt path in picnic area.	\$100,000	As needed; \$44,000 total over the life of the license
	Recreation Site Fencing			
	<i>Fencing was installed during original recreation site construction in 1992, but modifications are proposed as part of the current relicensing.</i>	REC-7: Reconfigure former sandbox area fencing to remove south, east, and west portions (retain north portion to partition recreation site from I-84).	\$12,000	\$2,000 periodically; \$20,000 over the life of the license
	Pedestrian River Access			
	N/A	REC-8: Improve two existing user-created trails located in and outside the Weber FERC Project Boundary: a. In the Project Boundary, improve (construct steps) the existing dirt river access trail at the west end of the recreation site; b. Outside the Project Boundary, provide \$30,000 through an off-license agreement	a. \$22,000 b. \$50,000	Included in REC O&M cost above \$0

Resource Area	Current PM&E	Proposed PM&E	Capital Costs of Proposed PM&E	O&M Costs of Proposed PM&E
Recreational Resources (continued)		with TU to fund cooperative effort to improve pedestrian river access (with concurrence from UDOT and the underlying land owner) at the under-freeway user-created trail extending west from the Weber Recreation Site—proposed improvements would involve breaking up the existing large-boulder surface or backfilling this surface to create a navigable path of smaller rock with minimal width (no paving). Funds provided through the off-license agreement may be used by TU to provide another habitat benefit in the watershed in the event that improving pedestrian river access in the indicated location is infeasible or requires less funding than provided through the agreement.		
	Boating Use of Bypass Reach			
	N/A	REC-9: Support whitewater boating use of bypass reach: If AW can identify access which it believes to be safe and legal, the USFS and DWCCC agree to review the proposed access and the items and improvements needed for safe use, such as but not limited to signage, steps for the portage area, and hazard mitigation. If the USFS agrees, in its sole discretion, that the proposed access is appropriate for public use, PacifiCorp will annually provide boater flows to the bypass reach by curtailing generation (up to 320 cfs or inflow) for 4-hour segments on four Saturdays prior to July 15. Flow schedule and notice to be determined in conjunction with AW, and in coordination with	\$10,000	\$4,000 annually; \$166,000 total over the life of the license.

Resource Area	Current PM&E	Proposed PM&E	Capital Costs of Proposed PM&E	O&M Costs of Proposed PM&E
		DWCCC and USFS, with the provision that boater flows in the future may be subject to minimum boater use (fewer than a minimum threshold of boaters may result in suspension of boater flows). Specific use triggers and related release changes to be determined.		

3.0 PROJECT PURPOSE §4.61 (C)(2)

The ~~Commission~~FERC, when issuing a new license for the Weber Project, requires that PacifiCorp undertake appropriate measures to promote both the development (power) and non-development uses (e.g., scenic, recreational, environmental) of the waterway. These public interest uses, identified by the ~~Commission~~FERC in its licensing orders, constitute the “project purpose.” The Weber Project is owned and operated by ~~PacifiCorp~~the Licensee to provide electricity to its customers. The Weber Project lands enclose only the lands necessary to operate and maintain the Weber Project and for other purposes such as recreation, shoreline control, or protection of environmental resources.

The Project Boundary is an administrative marker that clearly delineates those lands necessary for the operation and maintenance of the Project and for other Project purposes. These lands are determined through Exhibit G (Project Boundary maps) reflecting the inclusion or exclusion of certain lands.

Continued operation of the Project as proposed under a new license would provide affordable renewable hydroelectric generation to meet a portion of local power requirements, resource diversity, and capacity needs in the northern Utah region of PacifiCorp’s service territory.

4.0 APPLICATION DEVELOPMENT COSTS §4.61 (C)(3)

The current budget estimate for the development of the new license application and associated ~~relicensing~~ materials is currently \$1,099,000.

5.0 ON-PEAK AND OFF-PEAK VALUES OF PROJECT §4.61 (C)(4)

The Project is only operated in run-of-river mode, and therefore, estimated values of on- and off-peak Project power are not required.

6.0 ESTIMATED CHANGE IN PROJECT GENERATION §4.61 (C)(5)

The Project will continue to operate as a run-of-river facility, with new PM&E efforts for recreation (boating) flows and a new proposed fishway modifying the manner, but not the timing nor the volume, of minimum flows in the bypass reach.

The recreation-related PM&E measure deals with supporting potential whitewater boating use of the bypass reach. In the event that a safe and legal egress site is identified by the boating community and agreed to by the USFS and PacifiCorp, PacifiCorp would provide boater flows to the bypass reach by curtailing generation (up to 320 cfs or inflow) for 4-hour segments on four Saturdays prior to July 15 annually, for a total of up to 16 hours (48 MWh) annually of potential lost generation. The exact schedule of this provision of boater flows would be determined in conjunction with AW, and coordinated with the USFS and DWCCC. Boater flows in the future may be subject to minimum boater use. The Project operations described in this section would remain the same under the proposed action. Therefore, the value of power due to Project changes is expected to change minimally (up to 48 MWh annually, if approved) under the new license.

7.0 UNDEPRECIATED NET INVESTMENT (BOOK VALUE) OF THE PROJECT §4.61 (C)(6)

As of December 31, 2016, ~~the Licensee~~PacifiCorp had incurred an Original Cost Investment of \$4,554,002, Accumulated Depreciation of \$3,201,688, and a Net Book Value of \$1,352,314 for the Project.

8.0 ESTIMATED ANNUAL COST OF THE PROJECT \$4.61 (C)(7)

Project costs were calculated using rate-based methodology that incorporates existing net investment, routine hydro operations O&M, property and income taxes, depreciation and amortization, deferred taxes, and rate of return (PacifiCorp is self-insured).

The total Project forecast period is 44 years², from 2017 to 2060 ~~(using an initial 40-year license period, plus the years from 2017-2020 to get to the start of the new license).~~ Period of analysis is based on PacifiCorp's financial model duration. The annual inflation rate estimate is 2.53%. PacifiCorp's discount rate of 6.59% is based on the after-tax, weighted average cost of capital.

Property taxes paid on the Project were 1.51% of the 2016 net book value, or \$20,409, in 2016 (2016 is the last year calculated at the time of this analysis). PacifiCorp's corporate tax rate is 37.951%.

Table 8. Project's Capitalized Expenses for Period of 44 Years

Item	44-year Total (2016 \$\$, Millions of \$)	Present Value Cost (2016 \$\$, Millions of \$)
Property Taxes	1,869	694
Book Depreciation	48,189	6,414
Rate of Return @7.56%	10,872	4,121
Current and Deferred Income Taxes	4,420	1,680
Total	\$66,349	\$12,909

O&M estimates can vary significantly from year to year. PacifiCorp estimates are based on historical data as well as budget forecast estimates. Annual Project routine O&M costs were \$273,619 in 2016 dollars\$, totaling \$12 million over the 44-year

²PacifiCorp uses a financial model that considers the future 44-year period. It is expected that the analysis outcome for a 50-year analysis period (PacifiCorp is proposing a 50-year license period) is not significantly different than a 44-year period, due to the time-value of money nearing the end of the forecast period, and the additional level of uncertainty and risk injected into the analysis. This uncertainty, specifically affecting the analysis of the rate of inflation and the forward power cost price curve, has the effect of making the forecasted differences between the 44- and a 50-year mark meaningless. It is expected that a 50-year license would slightly improve the net customer benefit calculated in the current 44-year analysis from the generation benefit of a zero-fuel cost generating asset while adding no additional insight from a financial analysis perspective.

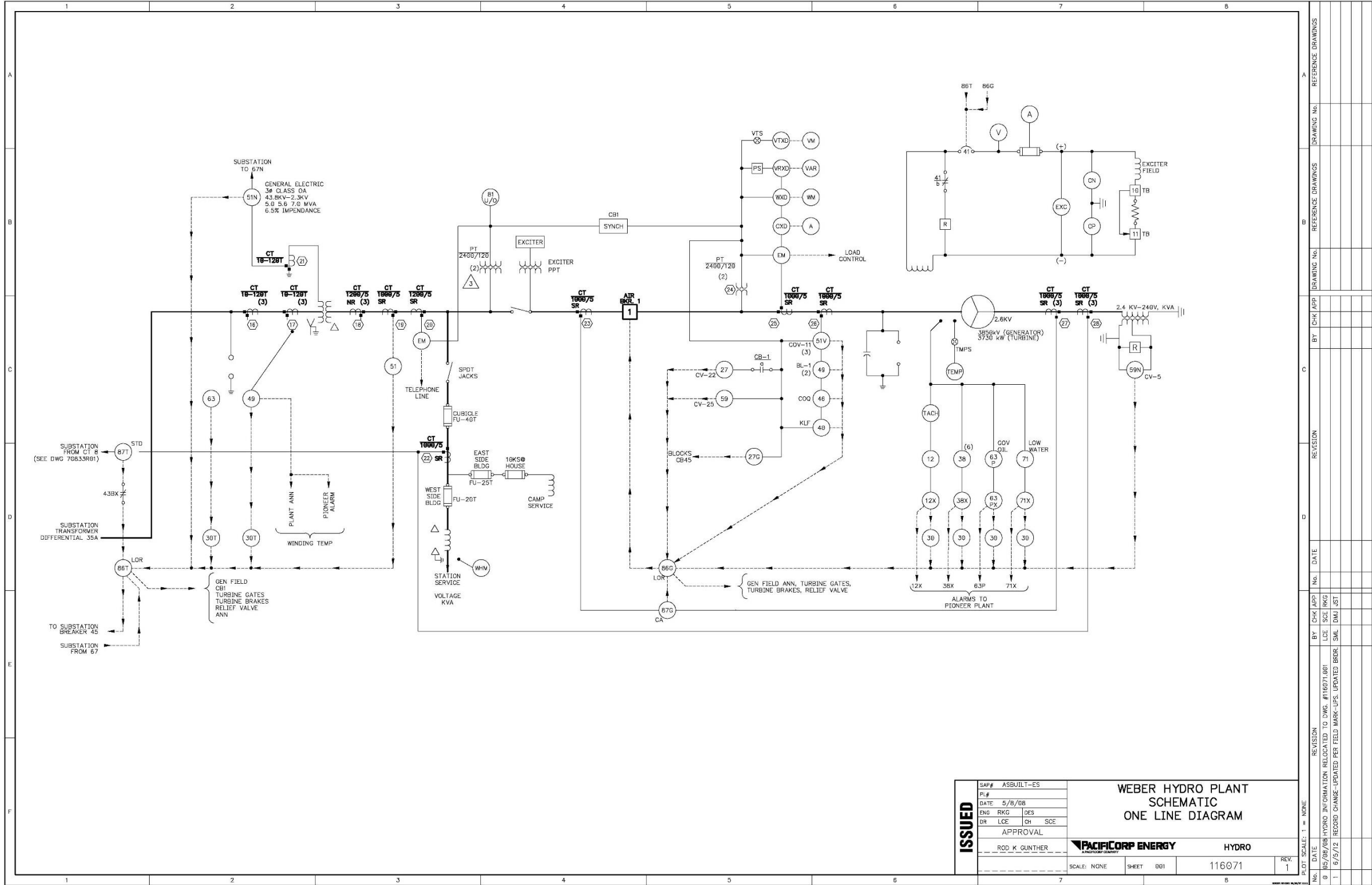
Note that the difference between a 40- and 50-year analysis period (PacifiCorp is proposing a 50-year license period) does not significantly change the total value, due to the time-value of money nearing the end of the forecast period, and the additional level of uncertainty and risk injected into the analysis. This uncertainty, specifically affecting the analysis of the rate of inflation and the forward power cost price curve, has the effect of making the forecasted differences between the 44- and a 55-year mark meaningless. Because projecting capital projects, inflation rates, and forward price curves 55 years into the future is beyond the scope of this analysis, the Project economic model was not run for a 50-year license period.; furthermore, PacifiCorp believes any projection 55 years from today would introduce unnecessary ambiguity and inaccuracy into the financial analysis. It is expected that a 50-year license In addition, the additional 11 years would slightly improve the net customer benefit calculated in the current 44-year analysis from the generation benefit of a zero-fuel cost generating asset while adding no additional insight from a financial analysis perspective.

analysis period. This estimate is based on the average of the prior three years of FERC Form 1 costs directly attributable to the Project reduced by relicensing implementation expenses. ~~Shown below~~ (Table 9) ~~shows~~ are the projected expenses to operate the Project for 44 years, unadjusted for inflation. The far-right column shows the total 44-year inflated costs, on a 2016 present value basis discounted at 6.59%.

Table 9. Project's Capitalized Expenses for Period of 44 Years With Inflation

Item	44-year Total (2016 \$s, Millions of \$s)	Present Value Cost (2016 \$s, Millions of \$s)
Routine O&M	12,039	5,421
Dam Safety	400	176
Impoundment Dredging/Maintenance	160	69
1965 Contract	(401)	(181)
Implementation O&M	345	141
Total	\$12,543	\$5,626

9.0 SINGLE LINE ELECTRICAL DIAGRAM §4.61 (C)(8)



Sue Larson K:\Hydro\Drawings\Hydro East Utah\Weber River\WEBER\ASBULT-WE\SCHEMATIC\116071.001.dwg P31072 DATE: JUN 05, 2012 TIME: 10:30 AM

10.0 MEASURES TO ENSURE SAFE MANAGEMENT §4.61 (C)(9)

Per Section 10(c) of the Federal Power Act (FPA), FERC is authorized to establish regulations requiring licensees to operate and properly maintain their projects for the protection of life, health, and property. The Weber Project dam is classified as a low hazard rating with a regulatory inspection frequency of every three ~~(3)~~ years; however, several measures are taken to ensure safe management of the Project, as described in the following sections.

10.1 OWNER'S DAM SAFETY PROGRAM ~~(ODSP)~~

The purpose of the Owner's Dam Safety Program (ODSP) is to define the procedures and actions that are to be taken by its employees and representatives to ensure that all dams and related water retaining structures are designed, constructed, maintained and operated in a manner sufficient to protect the public and its employees from the consequences of an unplanned event that could result in the uncontrolled release of water. On December 18, 2013, PacifiCorp filed a new ODSP with ~~the Commission~~ FERC. On February 24, 2015, ~~FERC~~ the Commission requested additional information and provided comments on the 2013 ODSP. On February 10, 2017, PacifiCorp filed a revised final of the 2013 ODSP. ~~Several~~ elements specific to the Weber Hydroelectric Project are currently planned for implementation in 2022. The Public Safety Program Elements of this ODSP consist of Emergency Action Plans (EAPs), Public Safety Plans (PSPs) and Security Plans. These are utilized to protect the public and provide notification to Emergency Management Agencies and/or the public if a course of events could or are leading to the uncontrolled release of water from a dam.

10.1.1 Emergency Action Plan

The EAP is a formal document that identifies potential emergency conditions at a dam and specifies a preplanned set of actions to be followed to minimize the notification time to the public and enable emergency management authorities to facilitate evacuations in the event of a failure. The Weber Project has been granted annual exemptions from the requirement of filing an EAP. As required by 18 CFR 12.21, PacifiCorp conducts annual comprehensive reviews of circumstances upstream and downstream of this Project to determine if there are changes that would endanger life, health, or property. Upon completion of these reviews, annual EAP exemptions are requested.

10.1.2 Public Safety Plan ~~(PSP)~~

A Public Safety Plan (PSP) is a formal document that identifies the location of specific safety features intended to provide the public with information about potentially hazardous conditions and areas restricted from public access, in and around PacifiCorp's dams and related facilities. The Weber Project PSP was Ordered by the ~~FERC~~ Commission on August 29, 1990. On April 28, 1993, ~~the new PSP was~~ PacifiCorp

filed ~~the new PSP~~ with ~~FERC the Commission~~. The PSPs are updated periodically; ~~Most recently,~~ on December 18, 2014, PacifiCorp submitted a revised PSP for the Weber Project; ~~A~~ subsequent revision, ~~attached to this document (Figures 5-7), will~~ be filed ~~on Dec~~ November 6, of 2017.

10.1.3 Site Security

PacifiCorp's Weber Project ~~s~~Security consists of specific physical security measures such as locked gates, locked powerhouse doors, security fences and gates (some with razor wire to discourage unauthorized access), alarms, 24/7 electronic monitoring, and the potential for 24/7 access by the plant operators. These have been implemented to prevent an attack on the dam or other Project features that could result in an emergency condition leading to the potential uncontrolled release of water or a threat to public safety.

10.1.4 Continuous Improvement

Continuous improvement requires an organizational environment that enables identification and learning of relevant information to improve both the content and execution of PacifiCorp's ODSP on a continual basis; PacifiCorp formally maintains a "Plan/~~Execute~~~~Do~~/~~Measure~~~~Check~~/~~Correct~~~~Act~~" management system in order to ensure this cycle of continuous improvement. The most important role in ensuring the continued safe and efficient operation of PacifiCorp's dams belongs to PacifiCorp personnel. Efficient paths of communication have been established between all segments of PacifiCorp's organization including open sharing and distribution of information upward and downward within the organization. Implementation of the system, including annual training, places an emphasis on the importance of information sharing amongst PacifiCorp personnel. The results of assessments and audits of this ODSP are shared within the PacifiCorp organization as lessons identified become available. Where applicable, company procedures for "root cause" and "significant event report" type analyses are utilized to investigate events.

10.2 ENVIRONMENTAL INSPECTION REPORT

On May 15, 2017, the ~~Commission~~FERC notified ~~PacifiCorp the Licensee of the Weber Project~~ that Environmental Inspections would be conducted at the project site on June 13, 2017 and June 14, 2017. On June 23, 2017, the ~~Commission~~FERC issued the results of the 2017 Environmental Inspection. PacifiCorp ~~responded to~~completed the action items noted below on ~~before~~ July 21, 2017.

Table 10. Environmental Inspection Action Items 2017

Action Item	Status
Trim the vegetation at the entrance to the accessible fishing pier upstream of the Weber Diversion Dam and report back on its completion within 30 days of the date of this letter.	Completed
Replace the missing grills and report back on their replacement within 30 days of the date of this letter	Completed

Action Item	Status
Boater warning signage upstream of the dam was obscured by overgrown willows. This vegetation should be trimmed to make the signage adequately visible to recreationists. [Suggested but not required.]	Completed
Barbed wire along the peak of the fence on the north side of the diversion dam had been cut, and should be repaired. [Suggested but not required.]	Completed
Sizable gap under the southwest gate to the powerhouse switchyard. This gap should be closed to prevent unauthorized access to the switchyard. [Suggested but not required.]	Completed

Based on file reviews, discussions, and field observations made during that inspection, the Project was in compliance with the license articles related to fish and wildlife, recreation, public safety, and cultural resources.³ Follow-up items needing action were noted during inspections of the Project, however as noted above, these items have since been completed.

³ Article 104 requires the Licensee to consult with the Forest Service annually with regard to measures needed to ensure protection and development of the natural resources values of the project area. Article 401 requires minimum flow releases of 34 cfs or inflow (whichever is less) from Oct. 1 to Mar. 31; and 50 cfs or inflow (whichever is less from Apr. 1 to Sep. 31. Article 402 requires the licensee to install and maintain streamflow gages in the Weber River to monitor flows of Article 401. Part 8 requires recreational signage and postings. Article 405 requires the Licensee to develop a day-use area near the UDOT rest stop and file associated activities with Phase II and III of the recreation plan. Article 406 authorizes the Licensee to grant permission for certain types of land use and occupancy on the Project lands and waters prior to Commission approval. Article 403 requires the Licensee to consult with the SHPO prior to any future land disturbing activities within the Project Boundary. Article 404 requires the Licensee to consult with the SHPO before starting any land disturbing activities and conduct a CRMP. 18 CFR Part 12 requires the Licensee to maintain facilities and measures to ensure public safety.

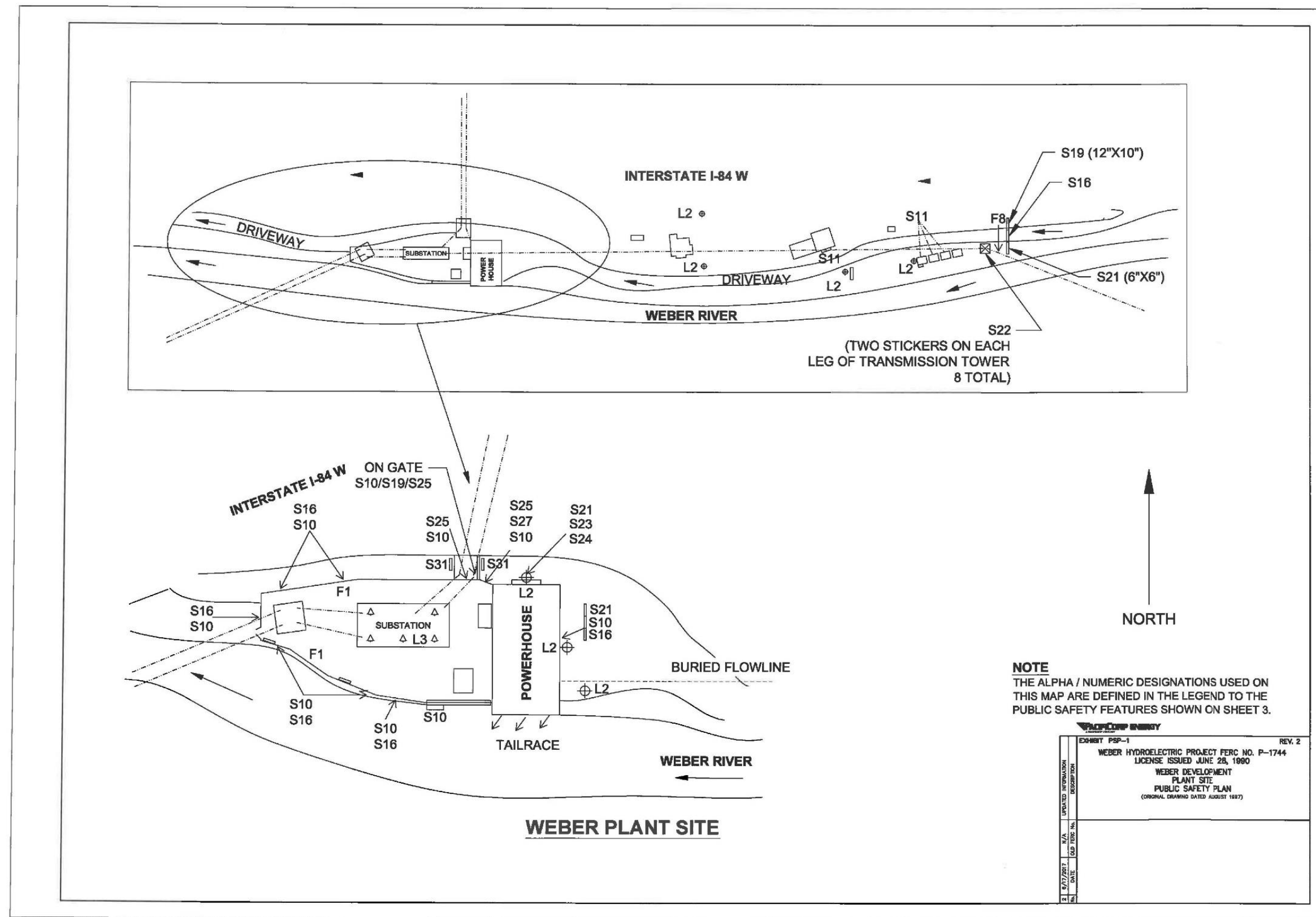


Figure 5. Weber Project Current Public Safety Plan

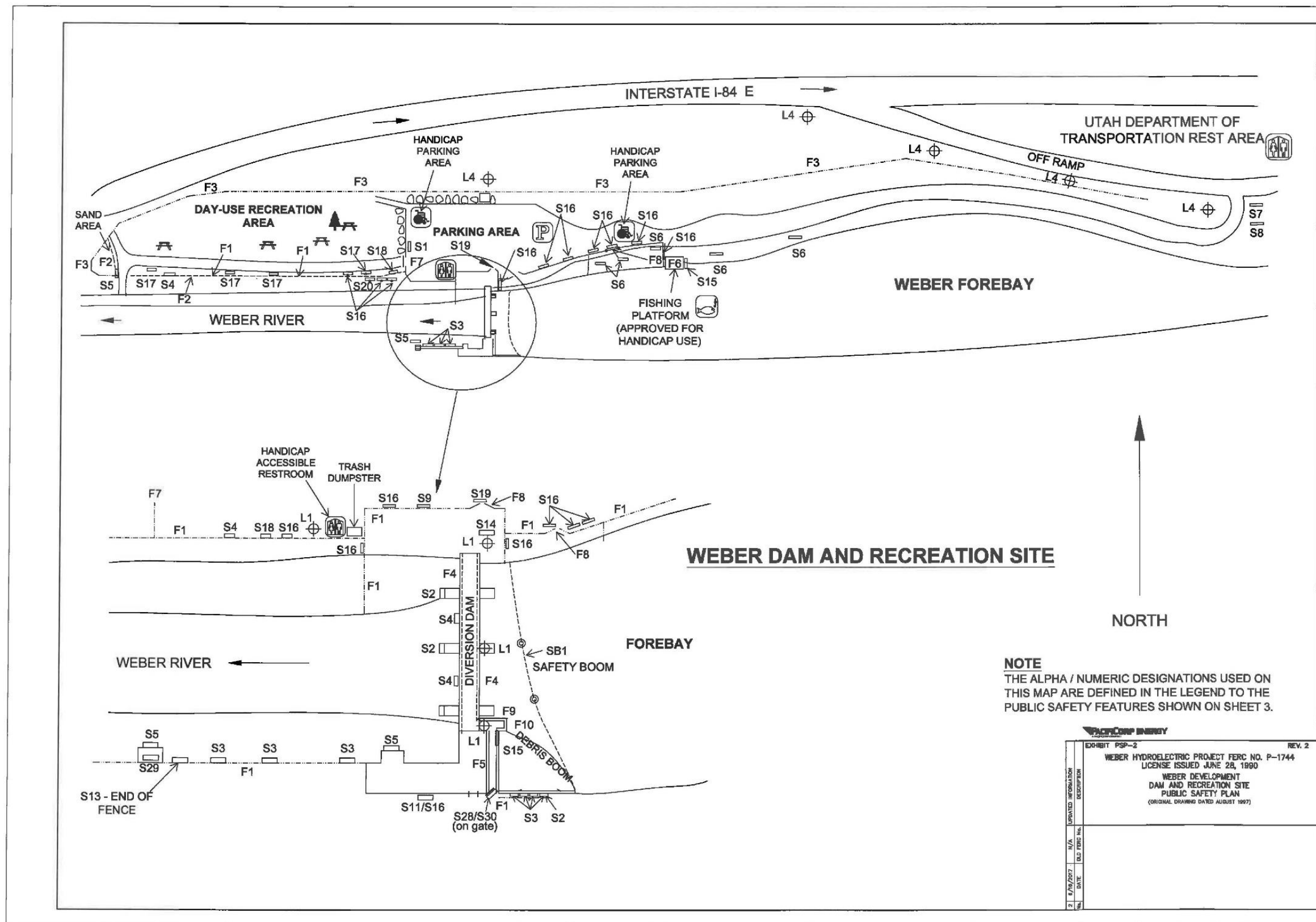


Figure 6. Public Safety Notifications Part 12 Signage at Powerhouse

LEGEND TO PUBLIC SAFETY PLAN

S = SIGNS

- S1 -WEBER HYDROELECTRIC PROJECT

Licensed by
Federal Energy Regulatory Commission
Department of Energy
Project No. 1744
Further information may be obtained by calling:
PACIFICORP 801-220-2245
- DAY-USE RULES
- S2 -DANGER

KEEP OFF (10"x14")
- S3 -UP&L

PRIVATE PROPERTY
NO TRESPASSING (10"x14")
- S4 -DANGER

RIVER SUBJECT TO RAPID RIVER
FLUCTUATION (10"x14")
- S5 -WARNING

RIVER MAY RISE RAPIDLY
STAY OUT / STAY ALIVE
LISTEN FOR HORN (20"x24")
- S6 -WARNING - HAZARDOUS WATER CONDITIONS

NO SWIMMING / STAY OUT / STAY ALIVE
(15"x20")
- S7 -STOP SIGN (2'x2')
- S8 -RIGHT TURN ONLY (20"x24")
- S9 -CAUTION WEAR PROTECTIVE EQUIPMENT

(12"x18")
- S10 -DANGER

HIGH VOLTAGE (10"x12")

S = SIGNS

- S11 -CAUTION: This Building Is Alarmed (8"x6")
- S12 -DANGER - Admittance By Authorized Personnel Only

(18"x14")
- S13 -DANGER

Do Not Walk On Pipe (24"x24")
- S14 -NO TRESPASSING

Closed To The Public (10"x14")
- S15 -DANGER

DAM & SPILLWAY AHEAD (24"x36")
- S16 -NO TRESPASSING OR LOITERING ON THIS PROPERTY

VIOLATORS WILL BE PROSECUTED (10"x14")
- S17 -DANGER

RIVER RISES RAPIDLY LISTEN FOR HORN (15"x20")
- S18 -NOTICE – Anglers Access 450 Feet (10"x14")
- S19 -NOTICE - IN THE EVENT OF AN EMERGENCY INVOLVING

THIS SITE, PLEASE CALL HYDRO CONTROL CENTER
877-562-9928
- S20 -NO TRESPASSING
- S21 -NOTICE - THESE PREMISES PROTECTED BY ALARM
- S22 -DANGER HIGH VOLTAGE ABOVE KEEP OFF
- S23 -PACIFICORP A MIDAMERICAN ENERGY

COMPANY - WEBER PLANT
- S24 -PACIFICORP A MIDAMERICAN ENERGY COMPANY - HYDRO

RESOURCES - NOTICE - AUTHORIZED PERSONNEL ONLY
- CAUTION WEAR PROTECTIVE EQUIPMENT
- DANGER HIGH VOLTAGE
- WEAR HEARING PROTECTION WHEN EQUIPMENT
IS OPERATING
- S25 -ROCKY MOUNTAIN POWER - A DIVISION OF PACIFICORP

PRIVATE PROPERTY - NO TRESPASSING -
PROPIEDAD PRIVADA
- PROHIBIO EL PASO
- S26 -WEBER SUBSTATION
- S27 -ROCKY MOUNTAIN POWER - A DIVISION OF PACIFICORP

WEBER SUBSTATION OGDEN
- S28 -NOT AN EXIT
- S29 -CAUTION CONFINED SPACE KEEP OUT UNLESS

AUTHORIZED
- S30 -DANGER - RAILROAD CROSSING MUST CONTACT RAILWAY

BEFORE CROSSING (1-888-877-7267)
- S31 -CAUTION CLEARANCE (13'3")

F = FENCING / HANDRAILS

- F1 -Diversion dam security fencing consist of a 7' high

chain link fence with three strands of barbed wire
and razor ribbon around the top.
- F2 -Recreation fencing consist of 48" high chain link

fencing with top rail.
- F3 -Recreation fencing consist of 6' high chain link

fencing with top rail.
- F4 -Diversion dam has 36" high chain link fencing with

top rail on both the upstream and downstream sides.
- F5 -Intake handrails consist of 42" high pipe handrails

located in front of the intake openings.
- F6 -Fishing platform hand railing consist of 42" high steel

handrails.
- F7 -Maintenance road access barrier is a 1-1/2 link chain

supported from 4' diameter poles cemented into the
ground.
- F8 -Steel access gate
- F9 -6' long link chain
- F10 -36" high pipe handrail

L = LIGHTING

- L1 -Diversion dam lighting consist of three mounted

spotlights.
- L2 -Powerhouse lighting consist of building mounted

incandescent lights and pole mounted mercury vapor
lights.
- L3 -Substation lighting consist of 5 incandescent lights

mounted on the switch rack structure.
- L4 -Access road lighting consists of four pole - mounted street

lights.

S = SAFETY DEVICES

- SB1 -There is a 140' long floating safety boom installed

upstream of the dam and intake structure. 2 floats noting "NO
SWIMMING" are equally spaced across the boom. The safety
boom is typically installed each April following ice-off
of the reservoir and removed in October prior to heavy
snowfall.

PACIFICORP ENERGY		REV. 2	
EXHIBIT	PSP-3	WEBER HYDROELECTRIC PROJECT FERC NO. P-1744	
		LICENSE ISSUED JUNE 28, 1990	
UPDATED INFORMATION	DESCRIPTION	WEBER DEVELOPMENT	
		LEGEND	
21	8/10/2017	PUBLIC SAFETY PLAN	
		(ORIGINAL DRAWING DATED AUGUST 1997)	
DATE	N/A		

Figure 7. Legend for Current Public Safety Plan

APPENDIX A: MAPS

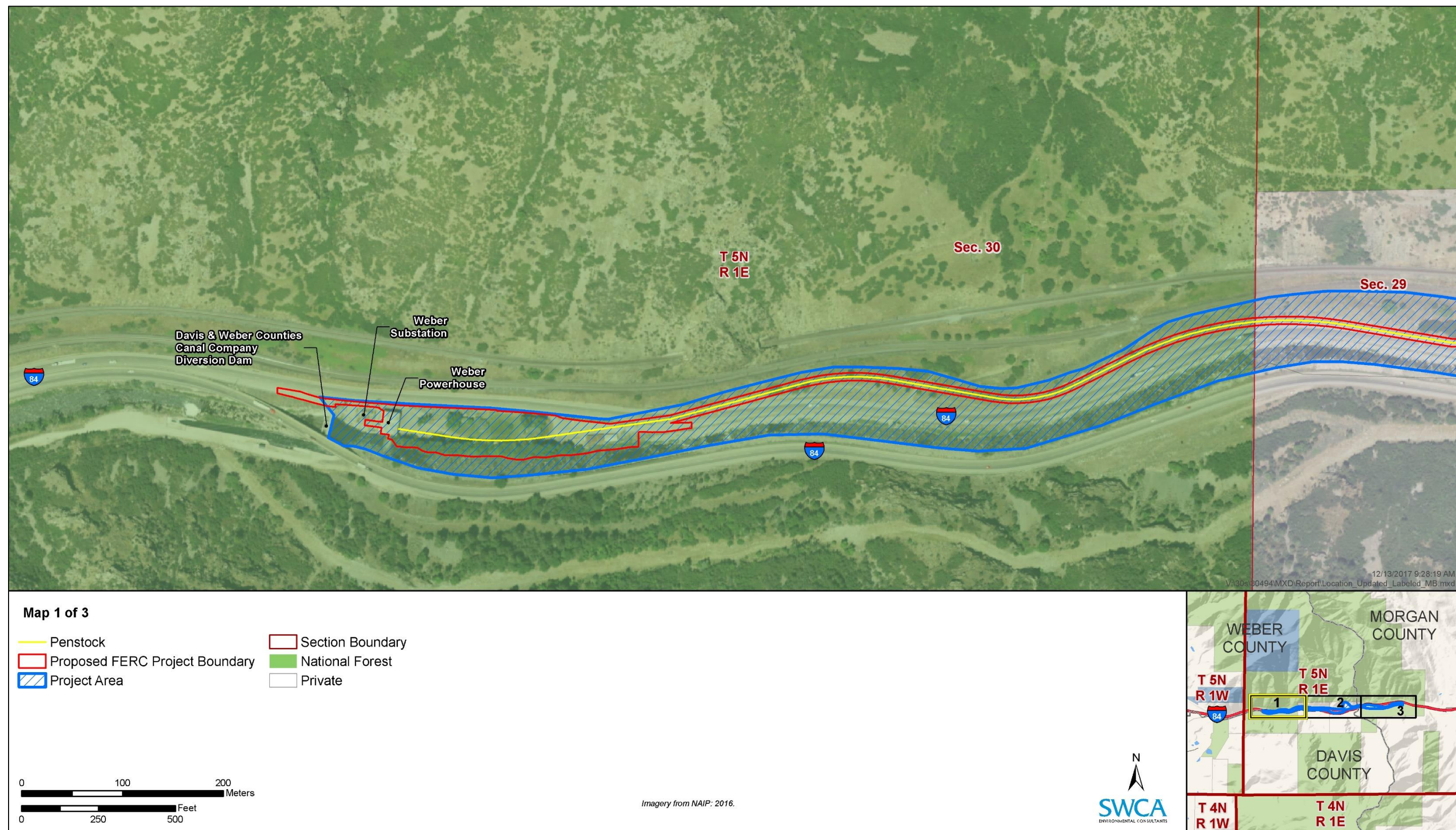


FIGURE A-1. DETAILED PROJECT LOCATION MAP (1 OF 3)

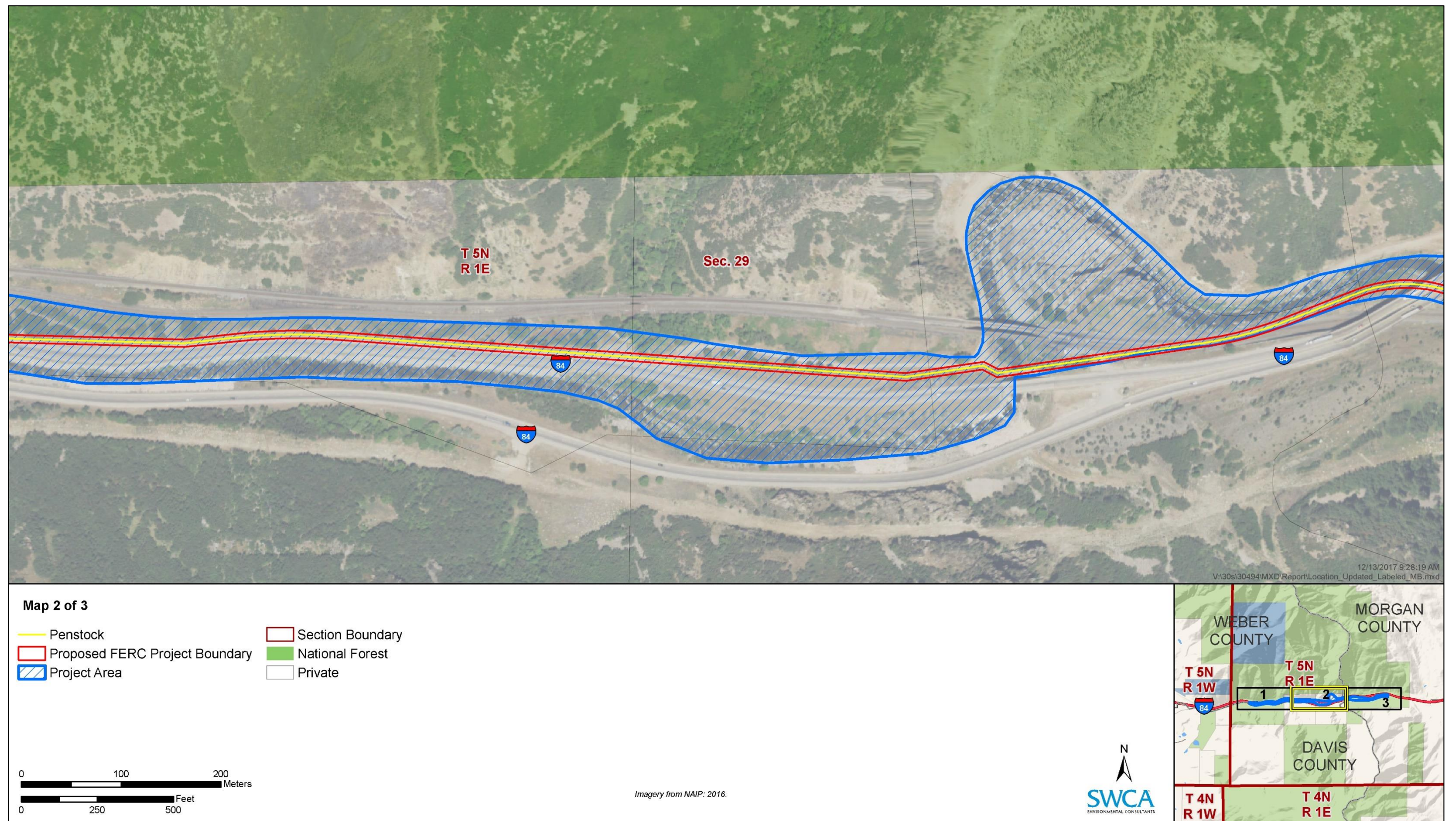


FIGURE A-2. DETAILED PROJECT LOCATION MAP (2 OF 3)

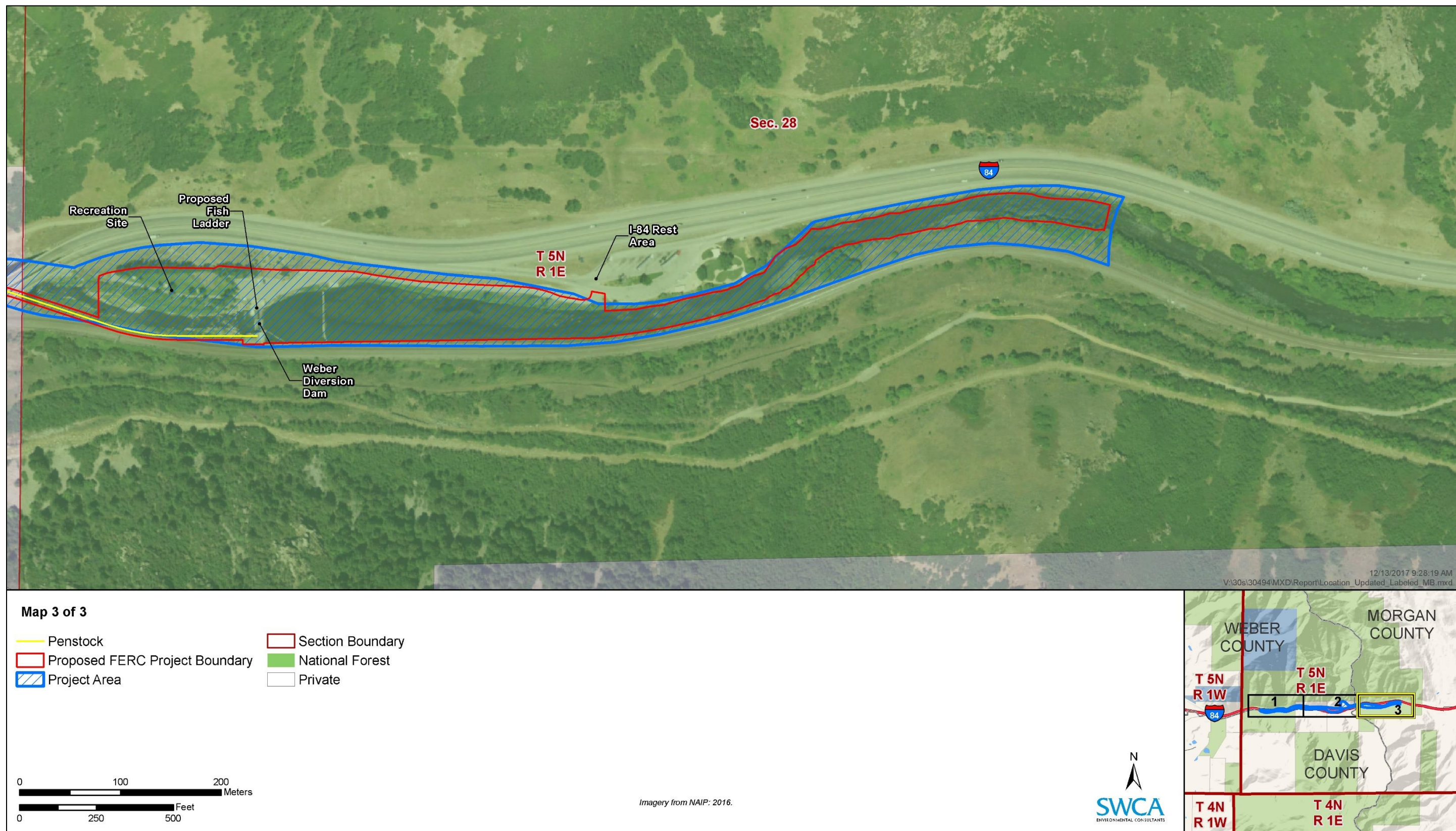


FIGURE A-3. DETAILED PROJECT LOCATION MAP (3 OF 3)