825 NE Multnomah St
Portland, OR 97232

Electronically filed February 16, 2024

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Subject: **Stairs Hydroelectric Project (FERC Project No. 597)**
Initial Consultation Document for Proposed Conduit Exemption and License Surrender

Dear Secretary Bose:

PacifiCorp is the owner, operator, and licensee of the Stairs Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC) Project No. 597, located on Big Cottonwood Creek, east of the city of Cottonwood Heights, in Salt Lake County, Utah. The Project is located in Big Cottonwood Canyon, partially on lands administered by the Uinta-Wasatch-Cache National Forest, and partially on PacifiCorp-owned private land. The current Project FERC license was issued on September 30, 1999, with an effective date of July 1, 2000, and expires on June 30, 2030 (88 FERC ¶ 62,300).

The Project operates as a 1.2-megawatt run-of-river facility and utilizes the natural fall of Big Cottonwood Creek. Big Cottonwood Creek flows are diverted at the Project's Storm Mountain Dam and intake through a steel flowline and penstock to the Project powerhouse and then released directly to the Granite Hydroelectric Project (FERC Project No. 14293) (Granite Project) intake. Once water passes through Granite Project, the water is released directly to the Big Cottonwood Canyon Water Treatment Plant's (BCCWTP) intake. BCCWTP is located at the mouth of Big Cottonwood Canyon and is a critical component in the region's drinking water system. Section 30(a)(2) of the Federal Power Act requires a potential conduit exempt facility to be located on a conduit used primarily for agricultural, municipal, or industrial consumption. The Project's water, diverted at Storm Mountain Dam, eventually leads to the BCCWTP for the purposes of municipal water supply. Due to the water conveyance network's priority for drinking water, the Project now qualifies under Section 30(a)(2) of the Federal Power Act as a conduit exempt facility.

Given conditions noted above, PacifiCorp submits the attached Initial Consultation Document (ICD) in support of Joint Application for Conduit Exemption and License Surrender, Stairs Hydroelectric Project. The Proposed Action of the ICD meets FERC's requirements for a joint conduit exemption and subsequent license surrender application in accordance with 18 Code of Federal Regulations (CFR) 4.30 and 4.90. Pursuant to the consultation process at 18 CFR 4.38(a)(6)(ii), PacifiCorp is formally initiating the first stage of consultation with the filing of this ICD. The ICD provides supporting background information, describes existing Project conditions and environmental setting, and describes that no physical, operational, or maintenance changes are proposed. The ICD also describes the information needed to make informed decisions about the Proposed Action; the future joint conduit exemption and license surrender application will provide FERC with the necessary information to conduct its independent environmental analysis.

Additionally, PacifiCorp respectfully requests that FERC designate it as the non-federal representative for this proceeding and the purposes of informal consultation under Section 106 of the National Historic Preservation Act and its implementing regulations at 36 CFR Section 800.2(c)(4). PacifiCorp also requests that FERC designate it as the non-federal representative for purposes of informal consultation under Section 7 of the Endangered Species Act and the joint agency regulations thereunder at 50 CFR Part 402, as well as section 305(b) of the Magnuson-Stevens Fishery and Conservation and Management Act and the implementing regulations at 50 CFR 600.920.

Pursuant to 18 CFR 4.38(a), PacifiCorp will hold a Joint Agency and Public Meeting (JAPM) for interested parties to this process including state and federal agencies, local governments, Tribes, non-government organizations, adjacent landowners, and members of the public, tentatively scheduled for March 21, 2024. One morning and one evening meeting session will be held, with one site visit scheduled to occur between the two sessions. The purpose of the JAPM is to discuss the Project and Proposed Action, review existing information obtained by PacifiCorp, discuss the potential environmental effects, and discuss studies, if any, to address data gaps. Once the JAPM date is finalized, PacifiCorp will distribute the agenda to FERC and potential interested parties no later than 15 days in advance of the meeting.

A notice of the JAPM with also be published in the local newspaper, The Salt Lake Tribune, at least 14 days in advance of the scheduled meeting date, in accordance with the requirements of 18 CFR 4.38(g). PacifiCorp will distribute the meeting summary and recording promptly following the meeting. Comments on the ICD and recommendations for studies or additional information are due to FERC no later than 60 days following the JAPM.

In accordance with 18 CFR 4.32, all interested parties may obtain a copy of the ICD electronically through FERC's eLibrary website at https://elibrary.ferc.gov/eLibrary/search by searching P-597 or on PacifiCorp's website at https://www.pacificorp.com/energy/hydro/Stairs.html. Parties on the attached distribution list have been provided with either an electronic or hard copy of this cover letter. This letter and its enclosures have been filed electronically. The security classification of each component in this packet is shown in the enclosure table below. If you have any questions concerning these documents, please contact Eve Davies, Stairs Exemption Project Manager, at 801-220-2245 or eve.davies@pacificorp.com.

Sincerely,

William C. Shallenberger
Vice President, Renewable Resources

WCS:ED:NVH:AN:EW

Encl:	Cover Letter – Public
	Attachment A: Interested Party Distribution List – Public
	Attachment B: Initial Consultation Document, In Support of Joint Application for Conduit Exemption and License Surrender, Stairs Hydroelectric Project – Public

eFile:	Kimberly D. Bose, Secretary via eFile at www.ferc.gov

STAIRS HYDROELECTRIC PROJECT (FERC PROJECT NO. 597)

INTERESTED PARTY DISTRIBUTION LIST

Bureau of Indian Affairs Navajo Region Regional Office 301 West Hill Street Gallup, NM 87301	Salt Lake County Watershed Planning Department 2001 South State Street, Ste N3-120 Salt Lake City, Utah 84114
Utah Department of Natural Resources Director, Utah Division of Wildlife Resources Box 146301 Salt Lake City, UT 84114-6301	Utah Department of Natural Resources Director, Utah Geological Survey PO Box 146100 Salt Lake City, UT 84114
Utah Department of Natural Resources Director, Division of Outdoor Recreation 1594 W North Temple, Suite 100 Salt Lake City, UT 84114	Teresa Wilhelmsen Utah Department of Natural Resources State Engineer, Division of Water Rights 1594 West North Temple, Ste 220 Salt Lake City, UT 84116 teresawilhelmsen@utah.gov
Salt Lake County Board of Commissioners 2001 South State Street, Ste N2-200 Salt Lake City, Utah 84114-4575 council@slco.org	Utah Department of Natural Resources Director, State Parks 1594 West North Temple, Ste 116 Salt Lake City, UT 84116
Congressman John Curtis 3549 North University Avenue, Suite 275 Provo, UT 84604 (801) 922-5400	Utah Public Service Commission P.O. Box 4558 Salt Lake City, UT 84114-4558
Candice Hasenyager Director, Utah Division of Water Resources PO Box 146201 Salt Lake City, UT 84114-6201 candicehasenyager@utah.gov	Sandy Wingert Environmental Scientist Utah Division of Water Quality (385) 256-3438 swingert@utah.gov
Eric McCulley Chair Jordan River Watershed Council bmcculley@usbr.gov	Spencer Cox Governor Office of the Governor 350 N State St. Suite 200 801-538-1000
State of Utah Office of the Attorney General PO Box 142320 SLC UT 84114-2320 uag@agutah.gov	Julius Murray Chairman Ute Indian Tribe 899 S 7500 E Ft. Duchesne, UT 84026 juliusm@utetribe.com
Virgil Johnson Chairman (Incoming) Confederated Tribes of the Goshute Reservation P.O. Box 6104 Ibapah, Utah, 84034 virgil.johnson@ctgr.us	Amos Murphy Chairman (Outgoing) Confederated Tribes of the Goshute Reservation P.O. Box 6104 Ibapah, Utah, 84034 amos.murphy@ctgr.us

Candace Bear Chairperson (Incoming) Skull Valley Band of Goshute Indians 1198 N Main St. Toole, UT 84029 candaceb@svgoshutes.com	Daniel Moon Chairperson (Outgoing) Skull Valley Band of Goshute Indians 1198 N Main St. Toole, UT 84029 Danielm@svgoshutes.com
Corrina Bow Chairperson Paiute Indian Tribe of Utah Tribal Council 440 N Paiute Dr. Cedar City, UT 84721 cbow@utahpaiutes.org	Dennis Alex Tribal Chairman Northwestern Band of the Shoshone Nation 2575 Commerce Way Ogden, UT 84401 dalex@nwbshoshone.com
Lee Tyler Chairman (Incoming) Shoshone-Bannock Tribes of the Fort Hall Reservation ltyler@sbtribes.com	Nathan Small Chairman (Outgoing) Shoshone-Bannock Tribes of the Fort Hall Reservation nsmall@sbtribes.com
Charlie Rosier Recreation, Lands, and Special Use Permits Administrator U.S. Forest Service 801-999-2159 charles.rosier@usda.gov	Pete Gomben Inter-regional Hydropower Program Manager U.S. Forest Service 801-625-5069 Peter.Gomben@usda.gov
George Weekley Deputy Field Office Supervisor U.S. Fish and Wildlife Service - Utah Field Office 2369 Orton Circle, Suite 50 West Valley City, Utah 84119 801-554-7660 george_weekley@fws.gov	Dannette Weiss Biologist, Energy U.S. Fish and Wildlife Services 801-975-3330 dannette_weiss@fws.gov
Jodi Gardberg Manager, Watershed Protection Section Utah Division of Water Quality 195 North 1950 West Salt Lake City, UT 84116 jgardberg@utah.gov	Chris Merritt State Historic Preservation Officer Utah State History 300 S Rio Grande St. Salt Lake City, UT 84101 cmerritt@utah.gov
Chris Hansen Deputy State Historic Preservation Officer, Compliance Utah State History 300 S Rio Grande St. Salt Lake City, UT 84101 801-245-7239 clhansen@utah.gov	Teresa Gray Water Quality and Hazardous Waste Manager Big Cottonwood Creek Water Treatment Plant 801-483-6744 teresa.gray@slcgov.com

Michelle Berry Water Treatment Engineer Big Cottonwood Creek Water Treatment Plant Michelle.Barry@slcgov.com	Mike Slater Regional Aquatics Program Manager Utah Department of Water Resources 801-491-5651 michaelslater@utah.gov
Tamara Prue Big Cottonwood Creek Water Treatment Plant - Salt Lake City Government tamara.prue@slcgov.com	Chris Crockett Aquatics Program Manager, Central Region Office Utah Department of Natural Resources chriscrockett@utah.gov
Chris Chaney Division of Hydropower Administration and Compliance Federal Energy Regulatory Commission (202) 502-6778 Christopher.chaney@ferc.gov	Connely Baldwin Water Resources Engineer/Hydrologist PacifiCorp 1407 West North Temple, Suite 210 Salt Lake City, UT 84116 connely.baldwin@pacificorp.com
Scott Catton Weber River Project Manager Trout Unlimited 435-321-7291 (office) 406-596-1276 (cell) Scott.Catton@tu.org	Stewart Edwards Sr. Hydro Resources Engineer PacifiCorp 1407 West North Temple, Suite 210 Salt Lake City, UT 84116 stewart.edwards@pacificorp.com
Eve Davies Relicensing Project Manager PacifiCorp 1407 West North Temple, Suite 210 Salt Lake City, UT 84116 eve.davies@pacificorp.com	Todd Olson Director, Compliance PacifiCorp 825 NE Multnomah Street, Suite 1800 Portland, OR 97232 Telephone: 503-813-6657 todd.olson@pacificorp.com
William Shallenberger Vice President, Renewable Resources PacifiCorp 825 NE Multnomah Street, Suite 1800 william.shallenberger@pacificorp.com	Nuria Holmes SWCA Environmental Consultants Nuria.Holmes@swca.com
Emily Waters SWCA Environmental Consultants Emily.Waters@swca.com	Annie Ng SWCA Environmental Consultants Annie.ng@swca.com
Charlotte Garris SWCA Environmental Consultants charlotte.garris@swca.com	

INITIAL CONSULTATION DOCUMENT

IN SUPPORT OF JOINT APPLICATION FOR CONDUIT EXEMPTION AND LICENSE SURRENDER

STAIRS HYDROELECTRIC PROJECT (FERC PROJECT NO. 597)

PACIFICORP®

POWERING YOUR GREATNESS

Prepared by:

SWCA ENVIRONMENTAL CONSULTANTS

FEBRUARY 2024

STAIRS HYDROELECTRIC PROJECT
FERC PROJECT NO. 597

INITIAL CONSULTATION DOCUMENT

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ACRONYMS AND ABBREVIATIONS

A	
AC	alternating current
ADA	Americans with Disabilities Act
amsl	above mean sea level
B	
BCCWTP	Big Cottonwood Canyon Water Treatment Plant
C	
CEQ	Council for Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CMP	Cottonwood Canyons Scenic Byways Corridor Management Plan
D	
DC	direct current
DUPUC	Daughters of the Utah Pioneers of Uintah County
E	
E. coli	*Escherichia coli*
EDDMapS	Early Detection and Distribution Mapping Systems
EJ	environmental justice
EPA	U.S. Environmental Protection Agency
F	
FERC	Federal Energy Regulatory Commission
Forest Plan	*Revised Forest Plan Wasatch-Cache National Forest*
G	
GBIF	Global Biodiversity Information Facility
GIS	geographic information system
Granite Project	Granite Hydroelectric Project
H	
HDPE	high-density polyethylene pipe
HUC	hydrologic unit code
I	
ICD	Initial Consultation Document
IPaC	Information for Planning and Consultation

J	
JAPM	joint agency and public meeting
Joint Application	joint conduit exemption and license surrender application
K	
kW	kilowatt
L	
LCT	landscape character themes
M	
MRLC Consortium	Multi-Resolution Land Characteristics Consortium
MW	megawatt
N	
NAS	Non-indigenous Aquatic Species
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
NVUM	National Visitor Use Monitoring
NWB Shoshone	Northwestern Band of the Shoshone Nation
NWI	National Wetlands Inventory
O	
OHV	off-highway vehicle
P	
PME	protection, mitigation, and enhancement
Project, or Stairs Project	Stairs Hydroelectric Project
R	
RCYBP	radiocarbon years before present
S	
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Office
SIO	Scenic Integrity Objective
SLEDS	*Sensitive Lands Evaluation and Development Standards*
SLOGELC	Salt Lake and Ogden Gas and Electric Light Company
Stairs Historic District	Stairs Station Hydroelectric Power Plant Historic District
SUP	special use permit

T

T&E	threatened and endangered
TMDL	total maximum daily load

U

UAIDA	Utah American Indian Digital Archive
UDEQ	Utah Department of Environmental Quality
UDNR	Utah Department of Natural Resources
UDWR	Utah Division of Wildlife Resources
UNPS	Utah Native Plant Society
UP&L	Utah Power and Light Company
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USU	Utah State University
Utah SCORP	*Utah's Statewide Comprehensive Outdoor Recreation Plan 2019–2023*
UWCNF	Uinta-Wasatch-Cache National Forest

1.0 INTRODUCTION

1.1 BACKGROUND

1.1.1 STAIRS HYDROELECTRIC PROJECT

PacifiCorp is the owner, operator, and licensee of the 1.2-megawatt (MW) run-of-river Stairs Hydroelectric Project (Stairs Project or Project). The Stairs Project is regulated by the Federal Energy Regulatory Commission (FERC) as FERC Project No. 597. The current Stairs Project license was issued by FERC as a Minor Project License (less than 5 MW) on September 30, 1999, with an effective date of July 1, 2000, and which expires on June 30, 2030 (FERC 1999).

The Stairs Project is located in Big Cottonwood Canyon along Big Cottonwood Creek, east and outside of the city of Cottonwood Heights in Salt Lake County, Utah. The Project lies within the Uinta-Wasatch-Cache National Forest (UWCNF) approximately two miles east of the mouth of Big Cottonwood Canyon, and is located partially on PacifiCorp lands (around the intake and dam) and partially on UWCNF lands (around the powerhouse and tailrace). The current FERC Project Boundary is approximately 13.3 acres and contains the following Project facilities: an intake, 0.5-mile-long flowline and penstock, a concrete and brick powerhouse containing a 1,200-kilowatt (kW) generating unit and adjacent transformer facilities, a tailrace canal that feeds water directly to the Granite Hydroelectric Project (Granite Project) intake and appurtenant facilities (PacifiCorp 1998). The Granite Project (FERC Project No. 14293) is a separate PacifiCorp hydroelectric generating facility located approximately two miles down canyon and regulated by FERC under a conduit exemption. The Project Area is defined as the official FERC Project Boundary plus a 0.5-mile buffer. The Project Area and Project Boundary are shown on Figure 1-1, and the Project schematic, which shows the flow of water to and the relation with the Granite Project and the receiving Big Cottonwood Canyon Water Treatment Plant (BCCWTP), on Figure 1-2.

The Stairs Project operates as a run-of-river facility and uses the natural fall of Big Cottonwood Creek, which is one of several creeks that flow from the western slopes of the Wasatch Mountains as part of the Jordan River Watershed, and is a tributary to Great Salt Lake, a terminal inland sea. Big Cottonwood Creek flows are diverted at the Project's Storm Mountain Dam and intake through a 0.5-mile-long steel flowline and penstock to the Stairs Project powerhouse

(featuring a turbine and associated generating equipment) and then released via the Project tailrace into the Granite Project intake after passing through the Stairs Project powerhouse (see Figure 1-2). The Granite Project flowline and penstock then provide water to the Granite Project powerhouse, located down canyon, and the Granite Project tailrace then conveys the water directly to the adjacent BCCWTP, which provides the largest share of drinking water to Salt Lake City.

The Stairs Project was originally constructed in 1895 by Robert M. Jones and the Big Cottonwood Power Company. Between the original construction date and 1912, the facility was sold to Utah Light and Railway Company, which later became Utah Power and Light Company (UP&L); both are predecessor companies to PacifiCorp. In 1912, the present dam, spillway, and intake were constructed and the original diversion and wood stave penstock were abandoned; later actions reduced the surface area of the reservoir pool by two thirds (PacifiCorp 1998). Further information about the Project's history is described in Section 6.7.

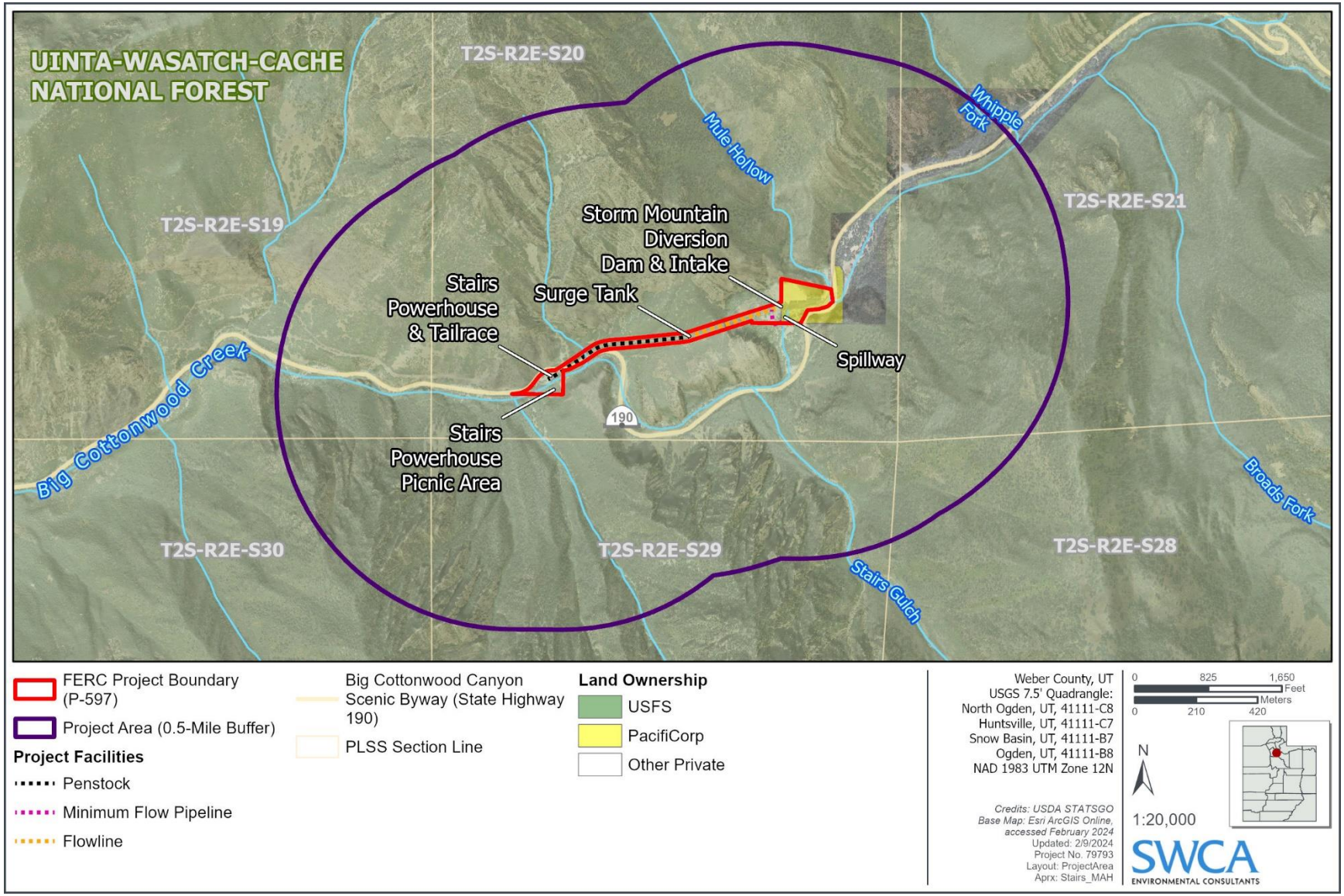

FIGURE 1-1 STAIRS PROJECT BOUNDARY AND PROJECT AREA

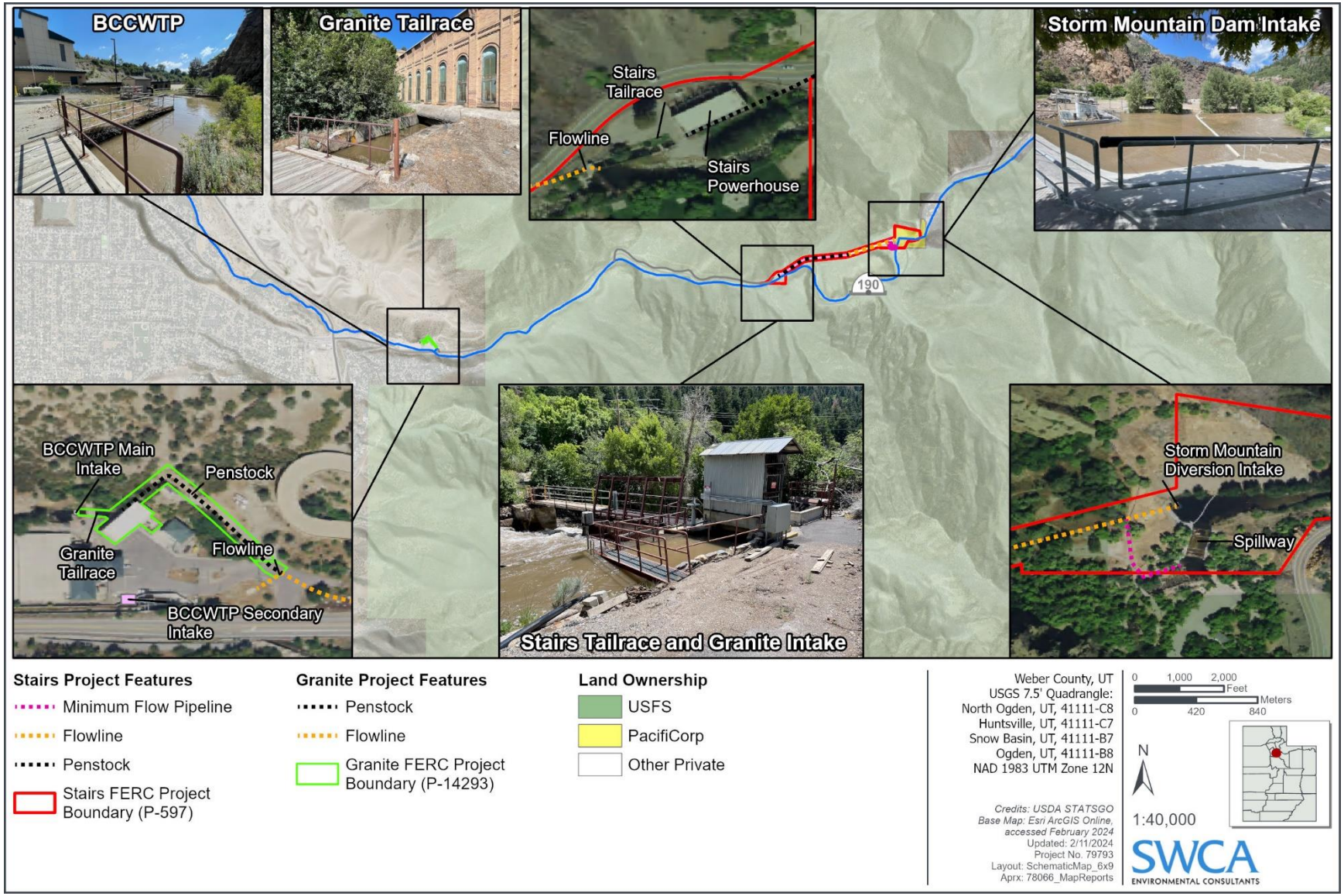

FIGURE 1-2 STAIRS PROJECT SCHEMATIC

1.1.2 GRANITE HYDROELECTRIC PROJECT

The Granite Project is a 2-MW hydroelectric facility owned and operated by PacifiCorp and located just downstream of the Stairs Project on Big Cottonwood Creek and was constructed between 1896 and 1897 (National Park Service 1989). The Granite Project consists of a powerhouse, transformer house, small dam, conduit, penstock, and two ancillary structures. The Granite Project Dam is located adjacent to and immediately downstream of the Stairs Project powerhouse, and can direct any additional accumulated flows in Big Cottonwood Creek that are sourced downstream of the Stairs Storm Mountain Dam and intake into the Granite Project intake and flowline. The Granite Project intake is located directly at the terminus of the Stairs Project's tailrace, where the Granite Project conduit conveys water to the Granite Project powerhouse. As noted previously, the Granite Project powerhouse is located at the mouth of Big Cottonwood Canyon, immediately east of the adjacent BCCWTP. From there, water from the Granite Project tailrace leaves the west side of the facility and discharges directly into the BCCWTP's intake. In 2011, PacifiCorp submitted an application to FERC for exemption of small conduit hydroelectric facility for the Granite Project (PacifiCorp 2011). On March 28, 2012, FERC issued an order granting the Granite Project a conduit exemption from the licensing requirements under 18 Code of Federal Regulations (CFR) 4.50 (FERC 2012).

1.1.3 BIG COTTONWOOD CANYON WATER TREATMENT PLANT

The BCCWTP is located at the mouth of Big Cottonwood Canyon in Cottonwood Heights, Utah, and was constructed between 1957 and 1959. The plant is owned and operated by Salt Lake City Department of Public Utilities and is a critical component of the city's drinking water system (BCCWTP 2023). This treatment plant supplies approximately 40 percent of the drinking water in the department's regional service area; it processes 38 million gallons of water per day and delivers water to the region.

1.2 PURPOSE OF THE CONDUIT

Section 30(a)(2) of the Federal Power Act requires a potential conduit exempt facility to be located on a conduit used primarily for agricultural, municipal, or industrial consumption. As discussed above (and shown in Figure 1-2), water enters the Stairs Project at the Storm Mountain Dam intake, travels through the penstock and into the Stairs Project powerhouse, and then exits

the Project tailrace directly into the Granite Project intake. Although Project water is diverted at Storm Mountain Dam, the Stairs Project license requires a minimum streamflow of 4 cubic feet per second (cfs) to be released back into Big Cottonwood Creek downstream of the Storm Mountain spillway, as shown on Figure 1-2; additional spring and channel accumulation, as well as spill, can also be collected at the Granite Project Dam, located at the terminus of the Stairs Project tailrace (see Figure 1-1 and Figure 1-2); there are no minimum flow requirements downstream of the Granite Project Dam, and in fact, the stream is not stocked with fish downstream of the Project, given the consumptive water use at the BCCWTP.

2.0 LICENSE AMENDMENT PROCESS PLAN AND SCHEDULE

2.1 AMENDMENT PROCESS AND SCHEDULE

Pursuant to 18 CFR 4.38, PacifiCorp has developed this Initial Consultation Document (ICD) to describe the Proposed Action, provide background information regarding existing and proposed operations and facilities, describe the existing environment, and involve agencies, Tribes, and other interested parties with the identification of pertinent resource issues. Interested parties include local governments, non-governmental organizations, adjacent landowners, and members of the public. The consultation requirement functions as a platform for which protection, mitigation, and enhancement (PME) measures and other studies can be developed through consultation with interested parties. This ICD is a precursor to the environmental analysis section of the joint conduit exemption and license surrender application (Joint Application) and to FERC's separate and independent preparation of the National Environmental Policy Act (NEPA) environmental assessment.

FERC regulations at 18 CFR 4.38(a)(6)(ii) describe a three-stage consultation process in instances involving an exemption.[1] By filing this ICD, PacifiCorp is formally initiating the first stage of consultation as outlined in Table 2-1 below. Three-stage consultation involves outreach to relevant agencies, Tribes, and other interested parties; holding a public meeting; conducting study planning and implementation; reporting on study results, if any; and providing a draft application for review and comment to interested parties. The consultation process culminates in PacifiCorp submitting an application for conduit exemption and license surrender for the Stairs Project that meets FERC regulations at 18 CFR 6.1 and 18 CFR 4.92.

In addition to filing the ICD on FERC's eLibrary and making the ICD available on the Stairs Project website, PacifiCorp will distribute this ICD to the state and federal agencies, local governments, Tribes, non-governmental organizations, and interested adjacent landowners

[1] Under 18 CFR 4.90, an applicant may apply to exempt a constructed or unconstructed small conduit hydroelectric facility, as defined in Section 4.30(b)(30), from all or parts of the requirements of Part I of the Federal Power Act, including licensing, and the regulations issued under Part I. Dam safety requirements under Part 12 still apply to owners and operators of exempt facilities. To qualify as a conduit, a facility must discharge water it uses for power generation either into a conduit, directly to a point of agricultural, municipal, or industrial consumption; or into a natural water body if a quantity of water equal to or greater than the quantity discharged from the hydroelectric facility is withdrawn.

identified in the consultation process. Interested parties subscribed to the FERC docket will receive notification via FERC's eFiling system.

On January 31, 2024, PacifiCorp hosted an informal, preliminary meeting to discuss the Stairs Project and the conduit exemption process. Meeting materials, including invitations, notes, and the meeting presentation are included in Appendix A of this ICD, and were also sent to the attendees/invitees.

TABLE 2-1 PRELIMINARY PROCESS SCHEDULE

RESPONSIBLE ENTITY	MILESTONE	ESTIMATED TIMELINE
Pre-consultation Activities		
PacifiCorp	Identify data gaps and conduct preliminary studies, as needed	Fall 2023
Stage 1 Consultation Section 4.38(b)		
PacifiCorp	Preliminary engagement meeting	January 2024
PacifiCorp	File and distribute ICD and proposed studies for **comment** and **requesting** additional study requests, if applicable Request designation as FERC's non-federal representative for informal consultation pursuant to Section 106 of the National Historic Preservation Act and Section 7 of the Endangered Species Act	February 2024
PacifiCorp	Provide notification of joint agency and public meeting (JAPM) meeting location and timing	February 2024
FERC	FERC issues notice of approval of non-federal representative designation for informal consultation	Early 2024
PacifiCorp/ Interested parties	JAPM and site visit[a]	March 2024
FERC/ Interested parties	*Comments due*: ICD *Deadline*: Proposed study requests	April 2024
Stage 2 Consultation Section 4.38(c)		
PacifiCorp	Evaluate ICD comments and proposed studies received and develop draft study plans, if applicable (no studies are anticipated)	Spring 2024
PacifiCorp	Distribute draft study plans to interested parties for **comment,** if applicable (no studies are anticipated)	Spring 2024
Interested parties	*Comments due*: draft study plans if applicable (no studies are anticipated)	Spring 2024

RESPONSIBLE ENTITY	MILESTONE	ESTIMATED TIMELINE
PacifiCorp	Conduct remaining studies, if applicable (no studies are anticipated)	Summer 2024
PacifiCorp	Issue draft study reports for **comment**, if applicable (no studies are anticipated)	Summer 2024
Interested parties	*Comments due*: draft study reports, if applicable (no studies are anticipated)	Summer 2024
PacifiCorp	Distribute draft application for conduit exemption and corresponding license surrender to interested parties for **comment**	Spring–Fall 2024
FERC/ Interested parties	*Comments due*: draft application for conduit exemption and corresponding license surrender	90 days following issuance of draft exemption application
Stage 3 Consultation Section 4.38(d)		
PacifiCorp	Submit final application for conduit exemption and license surrender	Spring–Fall 2024
PacifiCorp	FERC issues exemption order (subject to change)[b]	Prior to PacifiCorp notice of intent

Note: If a deadline falls on a Saturday, Sunday, or federal holiday, the due date will be advanced to the following Monday. The current FERC license for the Stairs Project expires on June 30, 2030; therefore, PacifiCorp must file a notice of intent no later than June 30, 2025.

[a] The JAPM must be held no earlier than 30 days, but no later than 60 days, from the ICD filing date.

[b] FERC does not have a specific timeline requirement for amendment application reviews.

2.2 PROPOSED ACTION

Pursuant to 18 CFR 4.30(b)(2), a conduit is defined as "any tunnel, canal, pipeline, aqueduct, flume, ditch, or similar manmade water conveyance that is operated for the distribution of water for agricultural, municipal, or industrial consumption and not primarily for the generation of electricity." Additionally, some ambiguity is present in the regulations' terminology regarding the statement "not primarily for the generation of electricity" and states that the term is not limited to a conduit "which was built for the distribution of water for agricultural, municipal, or industrial consumption and is operated for such a purpose; and to which a hydroelectric facility has been or is proposed to be added."

The Stairs Project was constructed for the generation of hydroelectric power; however, as municipal water projects developed the watershed of Big Cottonwood Creek for the consumptive use of drinking water supply (and what is now Salt Lake City's primary drinking water supply)

downstream of both the Stairs and Granite Projects, the primary function of both facilities was altered by the construction of the BCCWTP, including the primary purpose of the stream itself and both flowlines and penstocks, to becoming the conduit for water conveyance for municipal consumption.

The Stairs Project license expires on June 30, 2030. Given this, PacifiCorp must initiate relicensing for continued Project operations no later than June 2025. Because the Proposed Action would be an administrative change and there would be no changes to operations, maintenance, or facilities, which subsequently would not be expected to result in adverse environmental impacts, PacifiCorp is proposing that FERC waive studies in the second stage of consultation and that PacifiCorp focus on developing the exemption application following the joint agency and public meeting and ICD comment review period. PacifiCorp maintains that the Stairs Project meets the Federal Power Act definitions of a conduit; therefore, in lieu of initiating relicensing pursuant to 18 CFR 4.5 and 5.1, PacifiCorp proposes to initiate a Joint Application for exemption pursuant to 18 CFR 4.30 and 6.1, with the license surrender contingent upon granting of the exemption. Should FERC not grant the exemption, PacifiCorp would convert the ICD developed as part of the three-stage consultation to a pre-application document required pursuant to relicensing regulations at 18 CFR 4.6 and 5.1.

Under the Proposed Action, PacifiCorp would file a Joint Application with FERC pursuant to 18 CFR 4.90 and 6.2. There would be no construction of new facilities, no physical changes to current facilities, nor changes to Project operations or maintenance under the Proposed Action. PacifiCorp would continue to maintain the Project in accordance with federal and state dam safety standards and consult with the Utah State Historic Preservation Office (SHPO) regarding the Stairs Station Hydroelectric Power Plant Historic District (Stairs Historic District) and other Project cultural resources.

3.0 PROJECT FACILITIES

Section 3.1 provides detailed descriptions of current Project facilities, as depicted in Figure 1-2. Section 3.2 describes changes to Project facilities under the Proposed Action. Because no physical or operational changes are proposed, the Proposed Action constitutes an administrative change only; however, PacifiCorp may propose modifying the Project Boundary pending further discussion and review. Should PacifiCorp propose to modify the Project Boundary, details of such modification would be included in PacifiCorp's draft exemption application.

3.1 STAIRS PROJECT EXISTING PROJECT FACILITIES

The Stairs Project currently consists of the following facilities: the Storm Mountain Dam; a 48 to 52 inch–diameter, 2,850-foot-long concrete and steel flowline; a brick powerhouse with one generating unit having a total installed capacity of 1,200 kW; a tailrace canal; and appurtenant facilities. The reinforced concrete intake structure is located beneath the Storm Mountain Dam at an elevation of approximately 5,800 feet above mean sea level (amsl). Flows that enter the intake pass through a slide gate and travel through a 48-inch-diameter concrete flowline. The flowline transitions to a 48-inch diameter riveted steel pipe that serves as the Project penstock and transports water to the Stairs Project powerhouse at a maximum volume of 80 cfs. Flows in the Project tailrace are immediately routed to the Granite Project, or may be spilled downstream to the alternative full stream capture location at BCCWTP (FERC Project No. 14929) (PacifiCorp 1998).

3.1.1 INTAKE AND DIVERSION DAM

Construction of the original Stairs Project wood stave intake structure occurred in 1895 and was located upstream of the present intake. In 1912, construction of the present intake structure, spillway, and dam replaced the original, although the original forebay was altered at a later date, in the 1950s. The Storm Mountain Dam borders the UWCNF Storm Mountain Picnic Area; the fenced-off dam area can be accessed from a short dirt road behind a locked gate off of Big Cottonwood Canyon Road (Utah State Highway 190), or from the picnic ground via a footpath. The original 150-foot-long dam is composed of a stone core wall and is compacted by earth fill to a maximum height of 35 feet. The upstream face of the dam is covered with a concrete veneer. The axis of the dam deflects 60 degrees southwest, where the south and west legs are 200 feet

and 300 feet long, respectively. The dam impounds an approximately 0.2-acre reservoir that is insufficient for any generation load-following or peaking purposes at the Stairs Plant. A reinforced concrete spillway is located on the west end of the south leg of the diversion dam. Spill flows not diverted through the penstock are discharged back into the natural channel. The intake structure is a reinforced concrete box located 60 feet northwest of the spillway. The intake screen of the intake box is approximately 14 feet above the channel bottom. The intake itself consists of an 8-inch air vent pipe that extends vertically and an electric slide gate actuator that controls the inlet to the flowline (PacifiCorp 1998).

3.1.2 FLOWLINE AND PENSTOCK

Water is conveyed from the Storm Mountain Dam to the Stairs Project powerhouse by the Project flowline and penstock, collectively 2,775 feet in length. The license-required 4 cfs minimum flow is released from the Project flowline via a valve located immediately downstream of the dam, which brings water in the minimum streamflow pipe back to the stream at the downstream end of the concrete spillway, and ensures the 4 cfs is released anytime the flowline is operational. The flowline and penstock have both exposed and buried segments. Concrete saddles at approximately 50-foot intervals support the penstock in the exposed sections (PacifiCorp 1998).

The water is conveyed through a 48-inch steel riveted pipe flowline beginning at the intake structure, extending approximately 1,100 to 1,200 feet in length, and ending as it exits from the 400-foot-long mountain tunnel. A surge tank is located at the exit of the tunnel and is the transition from flowline to penstock. The penstock is approximately 1,700 feet long and extends from the surge tank to the penstock header pipe that is located on the south side of the powerhouse. The penstock, visible upon exiting the tunnel, gradually continues downhill and then drops 350 feet to a feeder pipe near the powerhouse where it is diverted to what is now a single generating unit. Historically there were multiple turbine/generator units installed in 1896; a single larger unit is still in use today, as described further below. The penstock is completely buried between Big Cottonwood Canyon Road and the powerhouse itself. The penstock also has several appurtenant features, including a standpipe, combination air valves, access holes, and a drain valve (PacifiCorp 1998).

3.1.3 POWERHOUSE AND TAILRACE

The Stairs Project powerhouse is listed in the National Register of Historic Places (NRHP) as part of the Stairs Station Hydroelectric Power Plant Historic District (Stairs Historic District). It is a two-story brick building located between Big Cottonwood Creek and Big Cottonwood Canyon Road. Originally constructed in 1895, the powerhouse design allowed multiple turbines, evidenced by the four 16-inch-diameter intakes branching from the penstock; however, records do not indicate how many turbines were originally installed in the powerhouse. One 1,119-kW horizontal shaft Francis reaction turbine, referred to as Unit 3, was installed in 1912 at an original turbine location. Construction of Unit 3 facilitated the need for a larger intake that connected with the existing one. A smaller, horizontal shaft 450-kW Pelton turbine, referred to as Unit 1, was installed in 1935 but later taken out of service. Unit 3 remains the only operational turbine in the powerhouse, and it was upgraded and refitted with a new runner and wicket gates in 1996. The refurbished generating unit has a maximum output of 1,379 kW at an efficiency of 84.5 percent with a discharge of 57 cfs, but it is limited by the generator's capacity of 1,200 kW. The north side of the powerhouse contains the non-Project fenced transformer and distribution equipment. On the south side of the powerhouse, a 7.0-foot-wide by 5.3-foot-deep reinforced concrete tailrace continues west past the powerhouse. Upon exiting the powerhouse, flows are diverted directly to the Granite Project's intake (or to Big Cottonwood Creek if the Granite Project is offline), and then to the BCCWTP alternative intake (PacifiCorp 1998).

3.2 PROPOSED CHANGES TO PROJECT FACILITIES

No physical changes to Stairs Project facilities are anticipated under the Proposed Action; all Project facilities in the existing FERC-defined Project Boundary would remain the same physically and functionally. These facilities consist of: 1) the Storm Mountain Dam; 2) a 48 to 52 inch–diameter, 2,850-foot-long concrete flowline/steel penstock; 3) a brick powerhouse and one generating unit having a total installed capacity of 1,200 kW; 4) a tailrace canal; and 5) appurtenant facilities.

4.0 PROJECT BOUNDARY AND LAND OWNERSHIP

4.1 CURRENT PROJECT BOUNDARY AND LAND OWNERSHIP

The Stairs Project Boundary (see Figure 1-1) encompasses approximately 13.3 acres. The Project occupies federal (entirely within the UWCNF) and private PacifiCorp lands. There are no privately owned parcels within the Project Boundary besides those owned by PacifiCorp. The Project's existing Exhibit G (Project Boundary Maps) was submitted on June 24, 1998 (PacifiCorp 1998).

PacifiCorp owns approximately 4.6 acres of land within the Project Boundary. This includes the impounded reservoir behind the Storm Mountain Dam, the spillway, stilling basin, and a portion containing most of the dam. The U.S. Forest Service (USFS) manages the remaining lands in the Project Boundary (8.7 acres) (Table 4-1) (PacifiCorp 1998).

TABLE 4-1 CURRENT FEDERAL REGULATORY ENERGY COMMISSION PROJECT BOUNDARY

LANDOWNER	CURRENT FERC PROJECT BOUNDARY
Federal	8.7 acres
PacifiCorp	4.6 acres
Total	13.3 acres

4.2 PROPOSED PROJECT BOUNDARY AND LAND OWNERSHIP

There would be no construction of new facilities, physical changes to current facilities, or changes to Project operations or maintenance under the Proposed Action; however, PacifiCorp believes that changes to the Project Boundary may be warranted. Should PacifiCorp propose to modify the Project Boundary, a description of these modifications would be included in the draft application filed as part of consultation.

5.0 PROJECT OPERATIONS AND LICENSE REQUIREMENTS

5.1 CURRENT OPERATIONS

The Project uses the natural fall of Big Cottonwood Creek. PacifiCorp's water right allows the diversion of 86 cfs from Big Cottonwood Creek for the purposes of power generation. Article 401 of the Stairs Project's current license requires PacifiCorp to release/maintain 4 cfs into the creek to maintain natural flows for aesthetic and fisheries purposes. Given their physical location and conveyance infrastructure entwinement, Stairs and Granite Projects' personnel coordinate water outflow with the BCCWTP. Additional details on the Project's water rights, water use, and water quality are discussed in Section 6.3 of this document.

The diversion dam, flowline/penstock, powerhouse and associated generation equipment, and tailrace are all operated and maintained by PacifiCorp personnel. The powerhouse is normally staffed daily (personnel split their time between the Stairs and Granite Projects or other Hydro East projects, depending on daily duties), with an operator on duty during the day, 7 days a week (PacifiCorp 2007). Powerhouse personnel are available during off hours and the local response time to the Project is less than 30 minutes (Baldwin 2024).

The Stairs Project is a run-of-river, non-peaking facility, with little or no water storage available. The Project is subject to seasonal river and runoff flows and a fluctuation in generation ability, generally operating as a small baseload energy source. The 1,250-kW horizontal generating unit at the Stairs Project powerhouse operates under semi-automatic control, because the unit must be manually started and synchronized online.

The powerhouse has a load control computer system that adjusts generator output to use all available water and maintains the Stairs Project forebay level within designated limits. When inflow exceeds 52 cfs, the generator is loaded to full load and the remaining water is spilled over the spillway. When the inflow is at or less than 52 cfs, a load control computer, located in the powerhouse office, adjusts the load on the turbine to maintain the forebay level between the preset dead band levels. The noted license-required 4 cfs minimum flow is maintained in the river by a 10-inch high-density polyethylene pipe (HDPE) pipe and valve that connects the

flowline downstream of the intake to a discharge structure just downstream of the spillway (PacifiCorp 2007).

The 1,250-kW generator generates up to 2,300 volts, which is stepped up to 12,500 volts in the adjacent non-Project switchyard. The powerhouse service is fed from the 1,250-kW station bus through a three-phase 250 alternating current (AC) step-down transformer, located in the switchyard. A battery provides 125-volt direct current (DC) to the station, and the battery voltage is maintained by a dedicated battery charger. The unit has a hydraulic actuator valve that controls the wicket gates and operating cylinder to synchronize the generator online and for loading up the unit (PacifiCorp 2007).

The turbine, generator, auxiliaries, and switchgear are all relay protected and will shut down automatically if abnormal operating conditions occur. Any unit, auxiliary, or switchgear alarm is received at the station annunciator panel, and a general alarm is received at PacifiCorp's Hydro Control Center at Merwin Dam, in Ariel, Washington, which will initiate action to have an operator respond. Additionally, the penstock water provides the fire protection system for the powerhouse in addition to numerous fire extinguishers located within the building. The powerhouse is controlled, protected, and monitored by various electronic systems such as a load controller, leak detector, and protective relays to protect the turbine, generator, and the penstock (PacifiCorp 2007).

Routine maintenance and daily inspections are performed by PacifiCorp personnel. General maintenance and equipment lubrication are applied when necessary. Routine operation at the Stairs Project consists of inspecting equipment in accordance with the station rounds checklist; checking water level at Storm Mountain Dam daily; cleaning all debris from trash rack, checking leaf rake for proper operation; recording minimum flow readings and record in station logs; and checking penstock pressure to ensure 150 to 157 pounds per square inch. Penstock and flowline inspections are also conducted on a predetermined schedule (PacifiCorp 2007).

5.2 PROPOSED CHANGES TO OPERATIONS

No changes to Project operations are expected under the Proposed Action. PacifiCorp would continue to be the primary responsible entity for inspection and maintenance activities at the penstock, powerhouse, and associated features.

5.3 CURRENT LICENSE REQUIREMENTS

The Stairs Project license is subjected to FERC's standard terms and conditions of license designated Articles 1 through 32 set forth in Form L-1, titled *Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States*. Additional Project-specific license articles are stated in the *1999 Order Issuing Subsequent License (Minor Project)* and are summarized in Table 5-1.

TABLE 5-1 SUMMARY OF CURRENT (1990) LICENSE REQUIREMENTS

ARTICLE/ CONDITION	REQUIREMENT	STATUS
Article 201	The licensee shall pay the United States annual charges, effective July 1, 2000: • For the purpose of reimbursing the United States for the costs of administering Part I of the Federal Power Act, a reasonable amount as determined in accordance with the provisions of the Commission' s regulations in effect from time to time. The authorized installed capacity for that purpose is 1,200 kW. Under regulations currently in effect, projects with authorized installed capacity of less than or equal to 1,500 kW are not assessed an annual administrative charge. • For the purpose of recompensing the United States for the use, occupancy, and enjoyment of 8.7 acres of its lands, other than transmission line right-of-way, a reasonable amount as determined in accordance with the provisions of the Commission' s regulations in effect from time to time.	Ongoing
Article 202	Within 45 days of the effective date of the license, the licensee shall file three sets of aperture cards of the approved exhibit drawings. The sets must be reproduced on silver or gelatin microfilm and mounted on type D (3 1/4 × 7 3/8–inch) aperture cards. Prior to microfilming, the FERC drawing number (597-1001) shall be shown in the margin below the title block of the	Completed (12/06/1999)

ARTICLE/ CONDITION	REQUIREMENT	STATUS
	approved drawing. The exhibit number shall be revised to agree with the exhibit number assigned in ordering paragraph (B) above. Additionally the Project number, FERC exhibit (e.g., F-1, G-1, etc.), drawing title, and date of this license must be typed on the upper left corner of each aperture card. Two sets of aperture cards must be filed with the secretary of the Commission. The remaining set of aperture cards shall be filed with the Commission' s San Francisco Regional Office.	
Article 401	Within 60 days from the date the Commission approves the gaging plan required by Article 403, the licensee shall release from the Stairs Project into Big Cottonwood Creek a minimum flow of 4 cfs, as measured at the bypass structure, or inflow to the Project, whichever is less, for protection and enhancement of fish and wildlife resources, aesthetic resources, and water quality in the bypassed reach of Big Cottonwood Creek. This flow requirement may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon agreement between the licensee and the USFS, the U.S. Fish and Wildlife Service (USFWS), and Utah Division of Wildlife Resources (UDWR). If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.	Completed (03/15/2001)
Article 402	Within 60 days from the date the Commission approves the gaging plan required by Article 403, the licensee shall operate the Project in a run-of-river mode for the protection of aquatic resources in Big Cottonwood Creek downstream of the Project tailrace. The licensee shall operate the Project so that, at any point in time, flows, as measured immediately downstream from the Project tailrace, approximate the sum of inflows into the Project's forebay. Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee and the USFS, the USFWS, and UDWR. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.	Completed (3/15/2001)
Article 403	Within 6 months of the effective date of this license, the licensee shall file with the Commission, for approval, a plan to monitor compliance with the minimum flow requirement of Article 401 and the run-of-river requirement of Article 402. At a minimum, the plan shall include:	Completed (12/27/2000)

ARTICLE/ CONDITION	REQUIREMENT	STATUS
	• a description of how the Project would be operated to maintain compliance with the minimum flow and run-of-river requirements, • a monitoring schedule, • a provision to maintain a log of Project operation and generation that includes documentation of all unusual circumstances such as load rejections, and • an implementation schedule for the plan. The licensee shall prepare the plan after consultation with the U.S. Geological Survey, the USFWS, USFS, UDWR, and Utah Department of Environmental Quality. The licensee shall include with the plan, documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on Project-specific information. A courtesy copy of the plan shall be filed with the Commission's San Francisco Regional Office. The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.	
Article 404	If archeological or historic sites are discovered during any future Project modifications or construction that require land-disturbing activities, or during Project operation or maintenance, or if the licensee plans any future modifications, other than routine maintenance, to already discovered archeological or historic sites, the licensee shall: (1) consult with the Utah State Historic Preservation Office (SHPO) and the USFS about the discovered sites; (2) prepare a site-specific plan, including a schedule, to evaluate the significance of the sites and to avoid or mitigate any impacts to sites found eligible for inclusion in the NRHP; (3) base the site-specific plan on recommendations of the SHPO and the USFS, and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation; (4) file the site-specific plan for Commission approval, together with the written comments of the SHPO and the USFS; and (5) take the necessary steps to protect the discovered archeological or	Ongoing

ARTICLE/ CONDITION	REQUIREMENT	STATUS
	historic sites from further impact until notified by the Commission that all of these requirements have been satisfied. The Commission may require cultural resources surveys and changes to the site-specific plans based on the filings. The licensee shall not implement a cultural resources management plan, begin any land-clearing or land-disturbing activities in the vicinity of any discovered sites, or modify previously discovered sites until informed by the Commission that the requirements of this article have been fulfilled.	
Article 405	(a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of Project lands and waters and to convey certain interests in Project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the Project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the Project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the Project lands and waters and requiring the removal of any non-complying structures and facilities. (b) The types of use and occupancy of Project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the Project's scenic, recreational, and other environmental values, the licensee shall require multiple use	Ongoing

ARTICLE/ CONDITION	REQUIREMENT	STATUS
	and occupancy of facilities for access to Project lands or waters. The licensee shall also ensure, to the satisfaction of Commission' s authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of Project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures. (c) The licensee may convey easements or rights-of-way across, or leases of, Project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into Project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-Project overhead electric transmission lines that do not require erection of support structures within the Project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69 kilovolts or less); and (8) water intake or pumping facilities that do not extract more than 1 million gallons per day from a Project reservoir. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed. (d) The licensee may convey fee title to, easements or rights-of-way across, or leases of Project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that	

ARTICLE/ CONDITION	REQUIREMENT	STATUS
	discharge into Project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross Project lands or waters but do not discharge into Project waters; (4) non-Project overhead electric transmission lines that require erection of support structures within the Project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least 0.5 mile (measured over Project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is 5 acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from Project waters at normal surface elevation; and (iii) no more than 50 total acres of Project lands for each Project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in Project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Hydropower Licensing, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked exhibit G or K map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period. (e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article: Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer. Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved exhibit R or approved report on recreational resources of an exhibit E; or, if the Project does not have an approved exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value. (3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands	

ARTICLE/ CONDITION	REQUIREMENT	STATUS
	conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall Project recreational use; (ii) the grantee shall take all reasonable precautions to insure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the Project; and (iii) the grantee shall not unduly restrict public access to Project waters. (4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the Project's scenic, recreational, and other environmental values. (f) The conveyance of an interest in Project lands under this article does not in itself change the Project boundaries. The Project boundaries may be changed to exclude land conveyed under this article only upon approval of revised exhibit G or K drawings (Project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the Project only upon a determination that the lands are not necessary for Project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the Project shall be consolidated for consideration when revised exhibit G or K drawings would be filed for approval for other purposes. (g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the Project boundary.	
Article 501	If the licensee's Project was directly benefitted by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement during the term of the original license (including extensions of that term by annual licenses), and if those headwater benefits were not previously assessed and reimbursed to the owner of the headwater improvement, the licensee shall reimburse the owner of the headwater improvement for those benefits, at such time as they are assessed, in the same manner as for benefits received during the term of this new license.	Ongoing

ARTICLE/ CONDITION	REQUIREMENT	STATUS
	(F) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission. (G) This order is issued under authority delegated to the Director and is final unless a request for a rehearing by the Commission is filed within 30 days from its issuance, as provided in Section 313(a) of the Federal Power Act. The filing of a request for rehearing does not operate as a stay of the effective date of this license or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing of this order shall constitute acceptance of the license.	

Source: FERC (1999).

5.4 PROPOSED CHANGES TO LICENSE REQUIREMENTS

Under the Proposed Action, PacifiCorp would be exempt from the licensing requirements under Part I of the Federal Power Act and would surrender the existing license for the Stairs Project; however, PacifiCorp proposes to maintain certain existing license requirements developed to protect, mitigate, or enhance environmental resources at the Project as part of the previous relicensing, specifically those related to the 4 cfs minimum streamflow, and updating the Project's cultural resources information and protections through the development of a historic resource management plan. These and any other proposed PME measures are included in Section 7 of this ICD.

6.0 ENVIRONMENTAL REPORT

Pursuant to 18 CFR 4.38(b), this section describes the affected environment and significant resources present in the area around the Stairs Project. Proposed environmental PME measures and studies are presented in Section 7.0. All analysis in this section focuses on the Project Boundary and Project Area, as defined in Section 1.1.1. Analysis of a larger geographic scope, known as the Project Vicinity, is also included where appropriate. The Project Vicinity is uniquely defined for each resource discussed below, where applicable.

6.1 GENERAL DESCRIPTION OF RIVER BASIN

This section provides a general description of the river basin and subbasins or watersheds in which the Project is located and information on the watershed, including major rivers, streams, and waterways that are tributaries to the basin. This section also describes general land and water use in the area. More detailed descriptions of resources within the Project Boundary and nearby area are included below in the respective resource sections of this document.

The Project lies within the Wasatch Mountain range, is encompassed by the UWCNF in Big Cottonwood Canyon, and is located along Big Cottonwood Creek, a tributary to the Jordan River (PacifiCorp 1999). At the headwaters of the canyon, Big Cottonwood Creek has been classified as a first-order stream and ultimately turns into a second-and third-order stream as it flows through the canyon (Schwager and Cowley 2000). Source waters at the top of the canyon flow from Silver Lake, Twin Lakes Reservoir, Lake Mary, Lake Martha, Lake Catherine, and Dog Lake (Schwager and Cowley 2000). At the base of the canyon, the stream (consisting only of accretion flows downstream of the Granite Project Dam, located at the terminus of the Stairs tailrace) leaves UWCNF and passes into the BCCWTP (Schwager and Cowley 2000). Downstream, the streambed, containing return flows of the BCCWTP, continues northward before its confluence with the Jordan River, which flows from Utah Lake, through Salt Lake Valley, and eventually empties into Great Salt Lake, part of the Great Salt Lake Basin, further discussed below (Figure 6-1) (PacifiCorp 1998).

6.1.1 GREAT SALT LAKE BASIN

The Great Salt Lake Basin (hydrologic unit code [HUC] 16020310) spans approximately 17,047.9 square miles in area and includes the northern part of Utah and portions of eastern Nevada, southeastern Idaho, and southwestern Wyoming (U.S. Geological Survey [USGS] 2023a; Wooley 1924). The Great Salt Lake Basin is a basin located within the larger (200,000 square miles) Great Basin and drains into Great Salt Lake (National Park Service 2021). Great Salt Lake is highly variable in elevation. At surface elevation of 4,192 feet amsl, it extends approximately 1,700 square miles. It is a terminal lake with no outlet in which water can only exit through evaporation (Berni et al. 2014; USGS 2024). Most of the water flowing into the Great Salt Lake Basin originates from the Bear, Jordan, and Ogden Rivers; additional water sources involve direct precipitation and internal springs.

Great Salt Lake consists of the remnants of the Pleistocene freshwater Lake Bonneville, which previously extended 20,000 square miles in area, covering most of western Utah, with some encroachment into Idaho and Nevada. Approximately 18,000 years ago, Lake Bonneville began to spill out into the Pacific Ocean through the Snake and Columbia Rivers, eventually culminating in what is known as the Bonneville Flood (Utah Department of Natural Resources [UDNR] 2022a). Following the flood, the surface area of Lake Bonneville was greatly reduced. Over time, landslides and bedrock filled the lake's outlet, the region became warmer and drier, and evaporation rates increased, confining Lake Bonneville to a closed basin, now known as Great Salt Lake (UNDR 2022a).

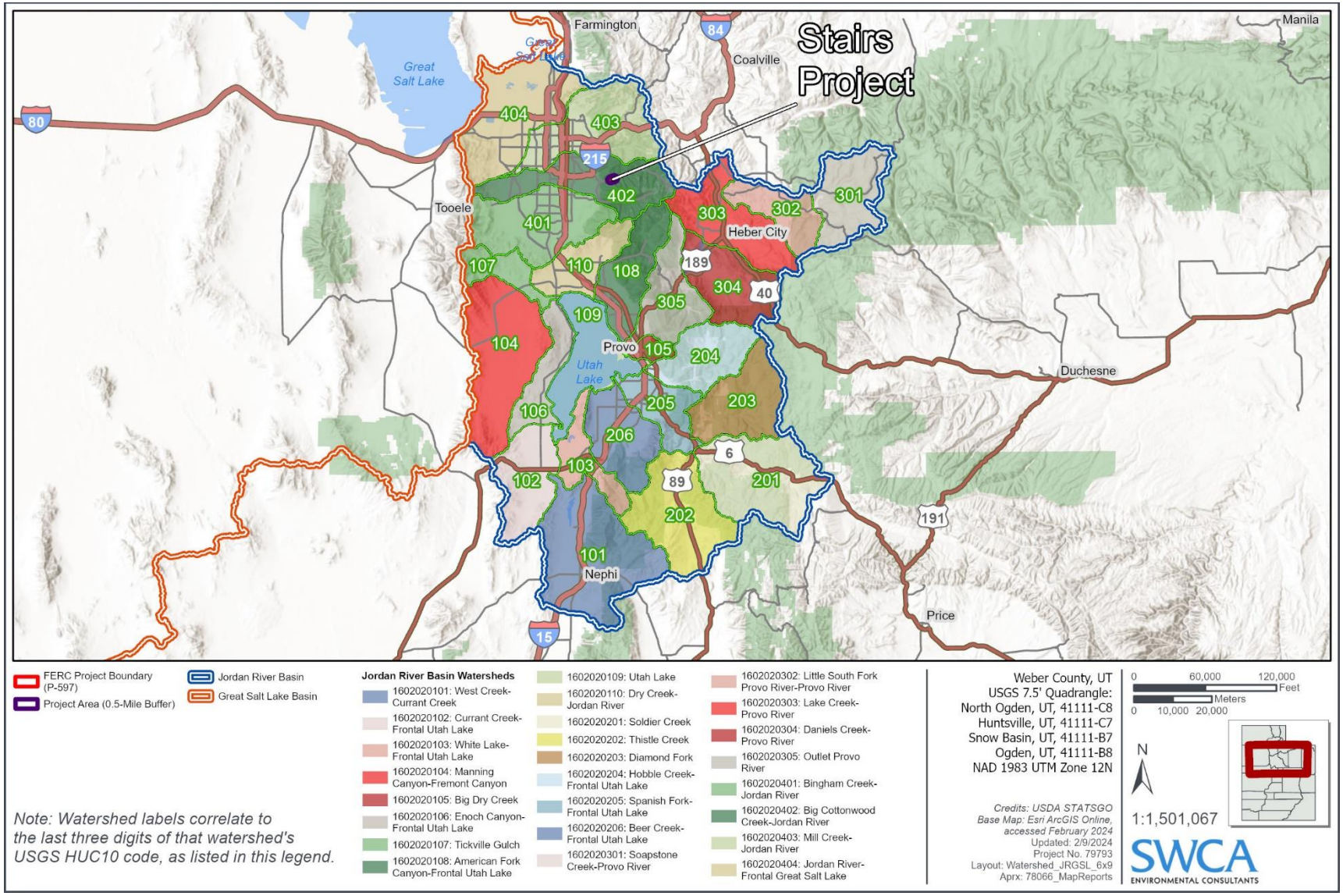

FIGURE 6-1 JORDAN RIVER (HUC 16020204) AND GREAT SALT LAKE (HUC 16020310) BASINS

6.1.2 JORDAN RIVER BASIN

The Project is located within the Jordan River Basin (HUC 16020204), which is adjacent to the Great Salt Lake Basin and drains an area of approximately 813.9 square miles (Figure 6-2) (USGS 2023a; Utah State University [USU] 2019). The Jordan River flow path extends northward for approximately 51 miles from the outlet of Utah Lake to Great Salt Lake (Berni et al. 2014).

There are seven major tributaries that contribute to the Jordan River system: Little Cottonwood Creek, Big Cottonwood Creek, Mill Creek, Parley's Creek, Emigration Creek, Red Butte Creek, and City Creek (Berni et al. 2014). Other major water bodies in the area include the American Fork River, Provo River, Hobble Creek, and Spanish Fork River (USU 2019).

The Jordan River Basin is located between two mountain ranges, the Wasatch Range to the east and the Oquirrh Mountains to west, with elevations ranging from approximately 4,192 feet amsl at Great Salt Lake (at present elevation) to over 11,000 feet amsl in the higher mountains (Berni et al. 2014). Due to the span of elevations, average annual precipitation in the watershed varies from 12 inches in the lower valleys to over 50 inches in the mountains (Berni et al. 2014). Much of the precipitation falls as snow, which ultimately melts in the spring and contributes to the river systems throughout the watershed. Climate change, persistent water depletions in the tributaries to Great Salt Lake, and ongoing drought conditions all contributed to the recent 2022 historic low elevation of Great Salt Lake.

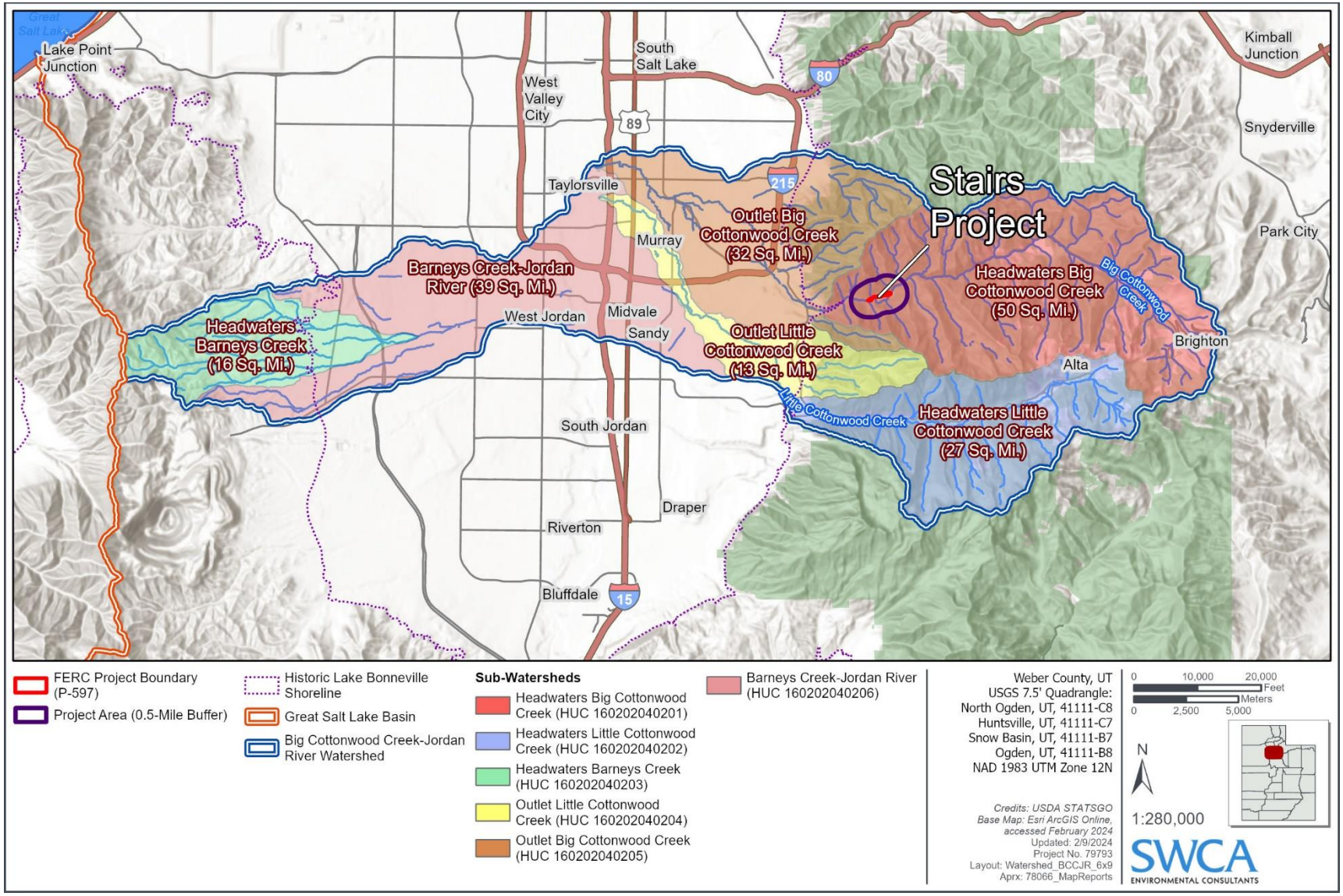

FIGURE 6-2 BIG COTTONWOOD CREEK-JORDAN RIVER WATERSHED (HUC 1602020402)

6.1.2.1 BIG COTTONWOOD CREEK-JORDAN RIVER WATERSHED

As briefly noted above, Big Cottonwood Creek is a major drinking water source for the Salt Lake City area (Schwager and Cowley 2000). Within the Jordan River Basin, the Project is more specifically located in the Big Cottonwood Creek-Jordan River Watershed (HUC 1602020402), which drains an area of approximately 176.8 square miles; it is highly protected under strict management rules due to its status as the single largest source of Salt Lake City's drinking water supply (Schwager and Cowley 2000). The average water yield of Big Cottonwood Creek is approximately 52,864 acre-feet, ranking as the highest water yield of any Wasatch Front ("the Front" extends approximately 105 miles from Brigham City to Provo, including Salt Lake City) canyon stream in Salt Lake County (Schwager and Cowley 2000).

Elevation of the creek varies from approximately 9,600 feet amsl at the headwaters in a basin formed by glacial activity in the Wasatch Range to approximately 4,250 feet amsl at its confluence with the Jordan River (Schwager and Cowley 2000). Big Cottonwood Creek discharges into the Jordan River after descending 24.3 miles (Berni et al. 2014) The hydrology of the watershed is dominated by the accumulation and melting of annual snowpack as well as melting of rock glaciers and is characterized by high spring, channel-forming flows and low winter baseflows. The Twin Lakes reservoir and Lake Mary, not operated by PacifiCorp, are located at the top of the drainage approximately 13 miles upstream from the Project and help regulate the flows during summer months.

6.1.3 LAND AND WATER USE

From the mid-1800s to early 1900s, Salt Lake City experienced tremendous growth, placing increased demands on the resources within Big Cottonwood Canyon and the surrounding UWCNF, especially from the timber industry's sawmills (Schwager and Cowley 2000). Section 6.9 further summarizes land use in the area. Recreation activities such as fishing, hiking, climbing, wildlife viewing, driving, and skiing in the area are also popular. Section 6.8 discusses recreation within the Project and surrounding areas. As noted above, the water in Big Cottonwood Creek is a major drinking water source for Salt Lake City (Schwager and Cowley 2000). Other uses in the area are irrigation, agriculture, and industry (USU 2019). Section 6.3 provides additional information on water use in and near the Project.

6.2 GEOLOGY AND SOILS

The following section provides a general description of the geological features and processes, as well as soil characteristics, within the Project Area and Project Vicinity (defined for geology and soil resources as Big Cottonwood Canyon), and how the Proposed Action may impact these resources.

6.2.1 REGIONAL GEOLOGICAL SETTING

The Project Area is located within Big Cottonwood Canyon in the UWCNF (Figure 6-3). The buildings and structures associated with the Project are found along Big Cottonwood Canyon Road and Big Cottonwood Creek, approximately 10 miles southeast of Salt Lake City.

Big Cottonwood Canyon is part of the Wasatch Mountain range, which has been shaped by extreme glacial and tidal (from former Lake Bonneville) activity over approximately 1 billion years. Part of the Middle Rocky Mountains province, the Wasatch Mountain range trends north-south through the Project Vicinity at elevations ranging from 5,000 feet amsl to over 11,000 feet amsl (Utah Geological Survey 2000). Until approximately 8,000 years ago, glaciers extended from the head of Big Cottonwood Canyon for approximately five miles, ending at Reynolds Flat, the terminal moraine deposit of the former glacier (Eldredge 2010). Below Reynolds Flat, the canyon is characterized as a river-carved, or V-shaped canyon, and above Reynolds Flat the canyon is characterized as a glacial-carved or U-shaped canyon. Tilted layers of quartzite and shale, in some areas metamorphosed into argillite and slate, dominate the downstream-most six miles of Big Cottonwood Canyon (Eldredge 2010). Further up the canyon, sandstone and limestone formations contain intrusions of granodiorite. The canyon walls are steep and rugged and are split by many tributary gulches that feed into the main canyon. The northern slopes and gulches experienced significantly less glaciation than those on the south side of the canyon, and therefore have a greater development of soil and vegetation (Lund 1980).

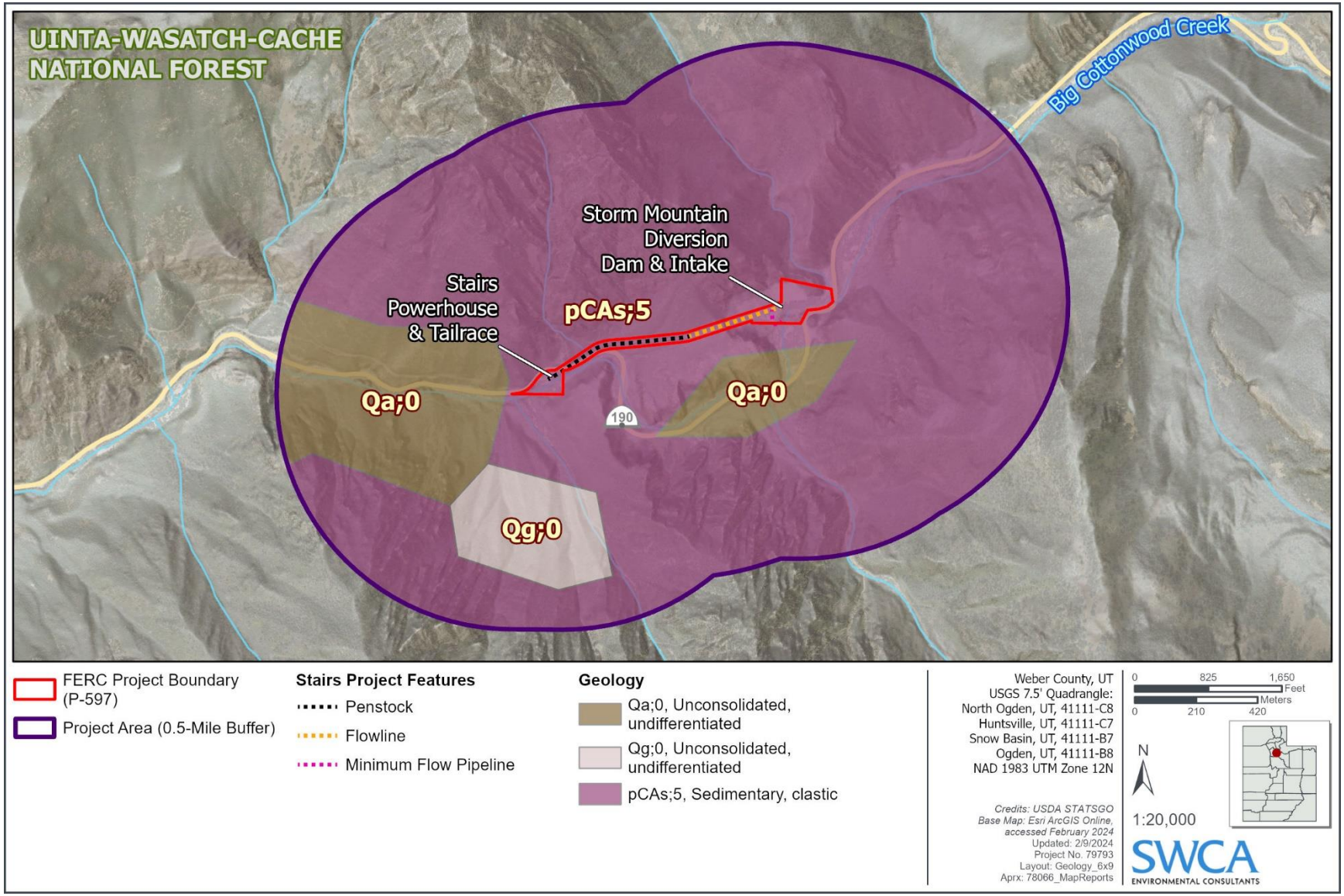

FIGURE 6-3 GEOLOGICAL FEATURES IN THE PROJECT AREA

The Project Area is in the lower portion of Big Cottonwood Canyon and is dominated by white and green quartzite and purple and black shales. White quartzite, and in some places pink quartzite, occurs in the lower portion of Big Cottonwood Canyon and is commonly associated with shale facies. Green quartzite is similar to white quartzite but is more common in the upper exposures of Big Cottonwood Canyon. The color variation among quartzite is a result of varying degrees of weathering, iron oxide content, and the percentage of quartz found in the rock (5 to 10 percent for green, 2 percent or less for white and pink) (Chan 1993).

The lower portion of Big Cottonwood Canyon contains mostly purple and green shale that is largely silty and poorly bedded, with "pin-stripe" laminations and ripples. These features are representative of a subtidal bed that experienced periodic desiccation. Higher in the canyon, from the Storm Mountain Picnic Area eastward, black shale facies are more distinctly bedded and well laminated and contain a variety of wave ripples and layers. These features are consistent with tidal settings (Chan 1993).

6.2.2 SOILS

There are a variety of soils and soil associations found in the Project Vicinity and the Project Area, including alluvium from sandstone and shale in the canyon bottoms and rocky outcrops along the canyon walls. These soil associations can be found in the sediment map below (Figure 6-4). The upper portion of the Project Area is primarily covered by rock outcrop that has less than 6 inches of soil material and Wanship-Kovich loams, which are very deep, somewhat poorly draining, and derived from sandstone and conglomerate alluvium. Lower in the Project Area, the Hades-Agassiz-Rock outcrop soil association is dominant. This soil association consists of shallow to deep, moderately permeable, well-draining soils on slopes between 30 and 70 percent. The lowest portion of the Project Area is a mix of stony terrace escarpments, which are deep and well drained, and sandy loam to clay loam that has a high hazard for erosion due to its medium to rapid runoff (PacifiCorp 2011).

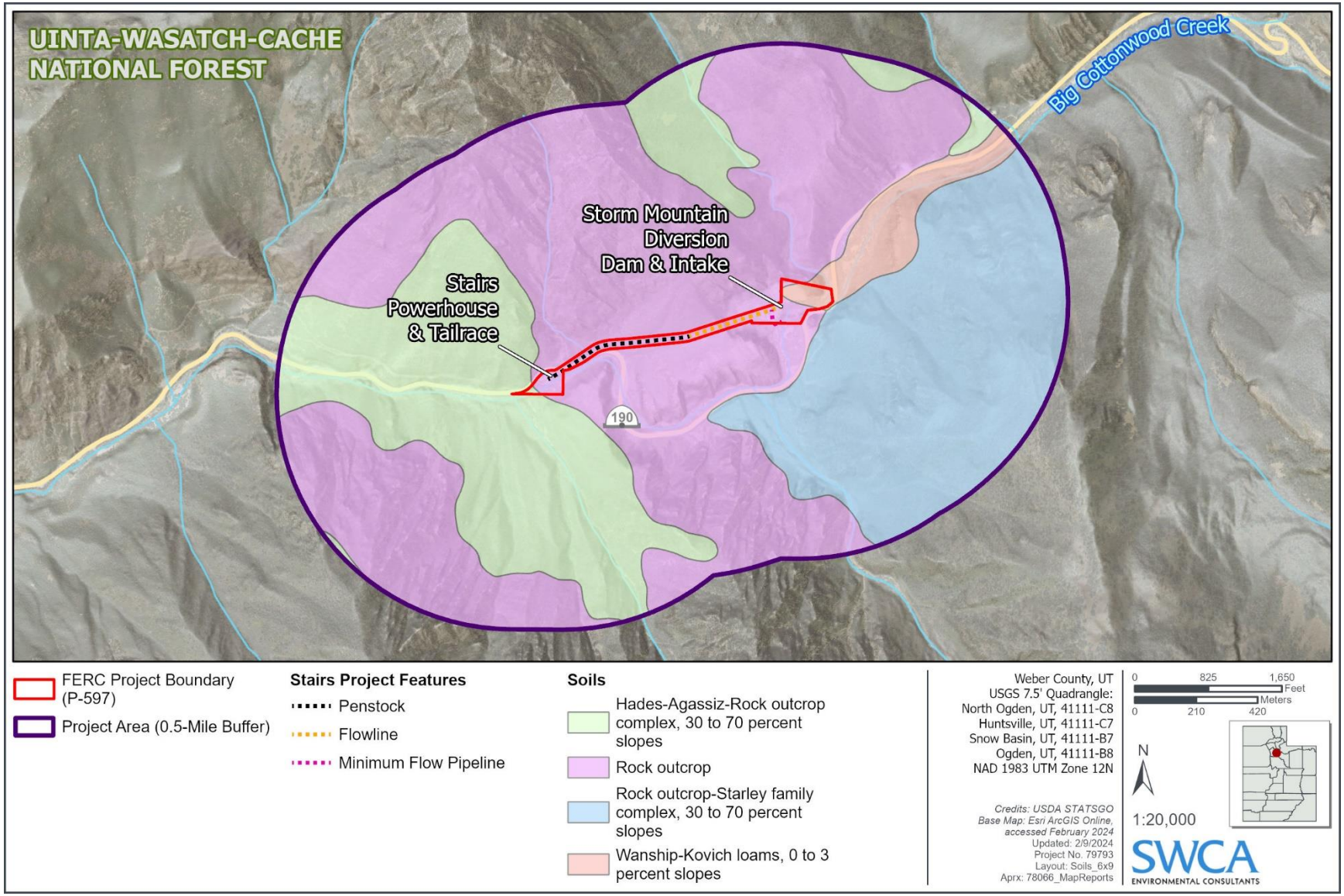

FIGURE 6-4 SOIL CLASSIFICATION IN THE PROJECT AREA

6.2.3 EROSION AND SEDIMENT CONTROL

Steep canyon walls and high annual snowfall within Big Cottonwood Canyon contribute to natural erosive forces that shape the canyon. Both developed and dispersed recreation and transportation in the area can also contribute to erosion. Urban and drinking water supply development of the lower portion of Big Cottonwood Creek has reduced the natural historical floodplain where entrained sediments would be deposited (Salt Lake County 2003). The creek, now constricted from this development, has gradually scoured down the creek bottom in some areas while depositing sediment in other areas (Salt Lake County 2003). The dominant geological hazards found in the Project Area are landslide, rockslide, rockfall, flooding, avalanche, and seismic shaking (Lund 1980). Erosion susceptibility varies throughout the Project Area based on the dominant soil association and geological conditions (depth to bedrock, slope, etc.). Previous work on the Storm Mountain Dam included erosion control in the form of riprap installation on either side of the spillway prior to high water in the spring of 2013 (PacifiCorp 2013).

6.2.4 ENVIRONMENTAL EFFECTS

Under the Proposed Action, PacifiCorp does not anticipate any construction, deconstruction, or excavation. The nature of the Proposed Action (administrative in nature, with no changes to Project features or operations) negates the risk of erosion, soil and bedrock damage, or excessive sediment loading. Maintenance of the Stairs Project and associated access points is expected to continue as it has during the current license period. No environmental effects on geology and soils are expected under the Proposed Action, and no PME measures or studies are proposed at this time.

6.3 WATER RESOURCES

This section addresses water quantity, water use (including water rights), and water quality conditions on Big Cottonwood Creek, and how those water resource elements would be affected by the Proposed Action. The Project Vicinity for this resource is the Big Cottonwood Creek watershed, including the area downstream of the Stairs Project powerhouse along Big Cottonwood Creek for 1.7 miles to the BCCWTP.

6.3.1 WATER QUANTITY

This section focuses on streamflow levels and timing in Big Cottonwood Canyon at the intake of the Project. Flows from Big Cottonwood Creek are diverted at the Storm Mountain Dam/intake then pass through a 0.5-mile-long flowline and penstock and turbine. The water emerging from the Stairs Project powerhouse tailrace is immediately diverted through the Granite Project intake to the Granite Project powerhouse, or excess flows may be spilled to the creek before being re-diverted downstream at the BCCWTP.

Due to the large number of boulders, irregular configuration of the channel, and extreme fluctuations in flow during the year, when planning for implementation of Article 401, PacifiCorp water resources staff determined that a stream gaging station was impractical to monitor minimum flows. Therefore, a 2-foot standard contracted rectangular weir was installed at the top of the Storm Mountain Dam spillway that includes a staff gage for plant personnel to take readings of the minimum stream flow (PacifiCorp 2000). This system was revised in 2008 to provide the minimum stream flow through a tap on the flowline, a pipe back over to the base of the dam, and a steel weir attached to a reinforced concrete bypass structure located underneath the west viewing platform adjacent to the dam spillway (PacifiCorp 2008). PacifiCorp measured daily streamflow directly upstream of Stairs Project powerhouse from 2008 through 2023 (Baldwin 2024). Monthly minimum, mean, and maximum flows for a 15-year record (2008–2023) are presented in Table 6-1. The data show that, over this period, mean monthly flows peak in May and June when snowmelt is most active, and are lowest from December through February during winter baseflow conditions, especially once the system is affected by winter ice, and input to the system is negligible.

TABLE 6-1 BIG COTTONWOOD CREEK DISCHARGE, UPSTREAM OF POWERHOUSE, FROM 2008 TO 2023 (CUBIC FEET PER SECOND)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Minimum	0.0	4.8	0.0	7.7	17.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean	12.4	12.7	17.7	38.1	52.9	52.0	39.5	27.8	29.2	21.0	16.9	14.4
Maximum	31.4	21.0	46.3	58.3	61.5	60.6	58.3	58.6	59.2	55.3	33.0	28.1

Source: Baldwin (2024).

The USGS Tailrace gage (Station No. 10168300), located approximately 600 feet upstream of the Stairs Project powerhouse, provides some historical data on flows that enter the Project Area. The USGS measured daily streamflow at this site from 1927 until 2006. Monthly minimum, mean, and maximum flows covering the most recent 30-year record (1976–2006) at the Tailrace gage is presented in Table 6-2. Note that these data represent an average of 900 datapoints (approximately 30 daily discharge statistics across 30 years). The data show that, historically (and similar to what was measured by PacifiCorp in Table 6-1), mean monthly flows peak in May and June and are lowest from December through February.

TABLE 6-2 BIG COTTONWOOD CREEK DISCHARGE, U.S. GEOLOGICAL SURVEY TAILRACE GAGE NO. 10168300 FROM 1976 TO 2006 (CUBIC FEET PER SECOND)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Minimum	0.0	0.0	0.0	1.57	0.34	0.21	5	13.7	12.8	0.0	0.0	0.0
Mean	13.7	14.1	20.6	34.5	43.4	44.1	35.3	32.1	27.4	19.4	17.8	15.2
Maximum	21.8	21.7	32.5	49.4	53.8	53.8	53	48.4	48.5	39.4	28.8	23.9

Source: USGS (2023b).

6.3.2 WATER RIGHTS

In 1914, the Third Judicial District Court of Salt Lake County established water use limits, amounts, and priorities allowing water users to divert water from Big Cottonwood Creek and its associated canals and ditches (PacifiCorp 1998). Under this decree, Utah Light and Railway Company, the predecessor to PacifiCorp, had diversion rights for non-consumptive purposes, which are still in effect today. PacifiCorp has one non-consumptive water right (57-10292) to divert a maximum of 86 cfs from Big Cottonwood Creek for the purposes of power generation. The Granite Project, which receives flows from the Stairs Project tailrace, also uses this water right (FERC 2008; PacifiCorp 1998; Utah Division of Wildlife Resources [UDWR] 2023a).

Article 401 of the Stairs Project's License requires a 4 cfs minimum stream flow release into the bypass reach of Big Cottonwood Creek to protect and enhance fish and wildlife resources, aesthetic resources, and water quality in this area of the creek. The 4 cfs minimum flow requirement ends at the Stairs Project powerhouse, and the downstream Granite Project has no minimum flow because the entire creek is diverted into the BCCWTP less than two miles downstream of the Granite Project Dam and intake, and 7 cfs is released into the creek from a

natural groundwater spring/seep just downstream of the Granite Project Dam and intake (Davies 2023).

6.3.3 WATER USE

Flows from Big Cottonwood Creek are relied upon for municipal water, irrigation, hydroelectric power production, recreation, and maintaining game fisheries (upstream of the Storm Mountain Dam). As previously mentioned, and pursuant to Article 401, PacifiCorp is required to release 4 cfs at the Storm Mountain Dam to maintain some flow in the creek through this reach. In spring and summer months, when water levels exceed the amount needed for the BCCWTP, water is diverted and used for irrigating alfalfa, pasture, corn, orchards, and turf fields. The upstream Project Vicinity is also maintained as a cold-water fishery, popular for offering small trout (see Section 6.4).

The BCCWTP is one of three water treatment facilities providing water to Salt Lake City. The plant was renovated in the 1980s to treat 42 million gallons of water per day. The water treatment plant diversion seasonally dewaters four miles between the canyon mouth and Cottonwood Lane (usually during the months of November through March, and also during summer months). Downstream from the Project the flows are fully used at the BCCWTP.

6.3.4 WATER QUALITY

Big Cottonwood Creek is broken up into two reaches. The first reach is confined within Big Cottonwood Canyon and extends 13.9 miles from upstream of Brighton, Utah, to the BCCWTP at the base of the canyon. The second reach extends 10.0 miles across the Salt Lake Valley from the BCCWTP to where it discharges into the Jordan River. Based on Utah water quality standards developed to conform with the Clean Water Act, the Utah Department of Environmental Quality (UDEQ) has designated the beneficial use classes for the first reach of Big Cottonwood Creek (upstream of the BCCWTP) as Class 1C: Domestic/Drinking Water Source, Class 2B: Infrequent Primary Contact Recreation (e.g., wading, fishing), and Class 3A: Cold Water Fishery/Aquatic Life (UDEQ 2023a). Table 6-3 lists these designated beneficial uses and their relevant water quality standards.

TABLE 6-3 UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY DESIGNATED BENEFICIAL USE CLASSES

WATER QUALITY PARAMETER	STANDARD FOR DESIGNATED BENEFICIAL USE		
	1C	2B	3A
Temperature (maximum)	–	–	20 degrees Celsius
Dissolved oxygen (minimum)	–	–	30-day average • 6.5 mg/L (all life stages) 7-day average • 9.5 mg/L (early life stages) • 5.0 mg/L (all life stages) Minimum • 8.0 mg/L (early life stages) • 4.0 mg/L (all life stages)
pH (range)	6.5–9.0	6.5–9.0	6.5–9.0
Total suspended solids	No beneficial use narrative standard: numeric standard is 70 mg/L		
Turbidity (NTE)		10 NTU	10 NTU
Total coliform	30-day geometric mean: 206 no./100mL Maximum: 668 no./100mL	30-day geometric mean: 206 no./100mL Maximum: 668 no./100mL	
Metals (dissolved, maximum mg/L)	Arsenic: 0.01 Barium: 1.0 Beryllium: <0.004 Cadmium: 0.01 Chromium: 0.05 Lead: 0.015 Mercury: 0.002 Selenium: 0.05 Silver: 0.05	–	Arsenic: 0.1 Cadmium: 0.01 Chromium: 0.1 Copper: 0.2 Lead: 0.1 Selenium: 0.05
Total Kjeldahl nitrogen (TKN)	No beneficial use standard		
Nitrate, total (maximum)	4 mg/L	–	4 mg/L
Total phosphorous	0.05 mg/L	–	0.05 mg/L

WATER QUALITY PARAMETER	STANDARD FOR DESIGNATED BENEFICIAL USE		
	1C	2B	3A
Orthophosphate (dissolved)	No beneficial use standard		
Narrative standard	"It shall be unlawful, and a violation of these rules, for any person to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste; or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by bioassay or other tests performed in accordance with standard procedures; or determined by biological assessments in Subsection R317-2-7.3" (Utah Administrative Code R317-2).		

Source: Utah Administrative Code Rule R317-2, Standards of Quality for Waters.
Notes: mg/L = milligrams per liter; mL = milliliter; no. = number of individuals; NTE = not to exceed background level; NTU = nephelometric turbidity units.

Water quality data are collected from several locations along Big Cottonwood Creek (UDEQ 2023b). Dissolved oxygen, pH, water temperature, total dissolved solids, nitrate, and phosphate are within Utah's water quality standards for designated use classes in Big Cottonwood Creek; however, the first reach of Big Cottonwood Creek (downstream of the BCCWTP) is listed as impaired for all three classes of use as listed above.

Clean Water Act Section 303(d) requires impaired water bodies to be added to the state's list of impaired and threatened waters. States are required to submit their list for U.S. Environmental Protection Agency (EPA) approval every 2 years. The EPA requires development of a total maximum daily load (TMDL) for all 303(d)-listed water bodies. TMDLs describe the amount of an identified pollutant that a specific stream, lake, river, or other water body can contain while preserving its beneficial uses and maintaining state water quality standards. This is developed by using existing data to calculate the maximum allowable load of a pollutant from permitted discharge sources and non-point sources of pollution discharge (EPA 2022a). There are eight classification types a water body can have, ranging from Class 1 (all beneficial uses meet applicable water quality standards) to Class 5 (the concentration of a pollutant or several pollutants exceeds numeric water quality criteria), with some classes containing subclassifications based on whether a TMDL has been developed. Big Cottonwood Creek is

classified as 5 for 303(d) TMDL assessment for exceeding concentrations of *Escherichia coli* (*E. coli*), cadmium, and copper (UDEQ 2023a). The EPA and UDEQ have not specified plans to restore water quality and have listed Big Cottonwood Creek as a low priority TMDL.

6.3.5 ENVIRONMENTAL EFFECTS

Under the Proposed Action, there would be no changes to Project operations, water rights, or flow requirements. PacifiCorp intends to continue to maintain existing license requirements, including the 4 cfs minimum flow release. No environmental effects on water resources are anticipated as a result of the Proposed Action, and no studies are proposed at this time.

6.4 FISHERIES

This section provides a summary of the fisheries resources known or likely to occur within the Stairs Project Area. Big Cottonwood Creek is a perennial, cold-water, high gradient stream dominated by boulder and cobble substrate, with a few areas of silt and gravel substrate (FERC 1999). Big Cottonwood Creek is part of the Mill Creek-Jordan River watershed within the Jordan River subbasin. With its headwaters in the Wasatch Mountains, the creek empties into the Jordan River, which then flows north and terminates into Great Salt Lake. UDWR has identified Big Cottonwood Creek upstream of the Storm Mountain Dam to be an important fishery resource due to its capacity to provide a trout fishery close to a metropolitan area (Schwager and Cowley 2000). The fisheries resources in Big Cottonwood Creek include several species of cold-water sport fish, such as Bonneville cutthroat trout (*Oncorhynchus clarki Utah*), rainbow trout (*Salmo gairdneri*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*) (Slater 2024).

6.4.1 RESIDENT FISH

Upstream of the Storm Mountain Dam, Big Cottonwood Creek supports a robust wild brown trout population (PacifiCorp 1998). UDWR also stocks a few higher elevation lakes (including Lake Blanche, Twin Lakes Reservoir, and Silver Lake) with rainbow trout, brook trout, and native Bonneville cutthroat trout (UDWR 2023b, 2023c). Rainbow, brown, and brook trout have been sampled consistently in reaches upstream of the Project Area since 1997 (Schwager and Cowley 2000). The most recent fish survey conducted in 2011 found brook trout, rainbow trout, and mountain sucker (*Catostomus platyrhynchus*) present approximately 11 miles upstream of the diversion in the reach just above Silver Lake (Cowley 2023).

Much of the Project bypassed reach (the approximately 0.75-mile section between the Storm Mountain Dam intake and the Stairs Project powerhouse) is characterized by steep slopes and low flows that limit the development of significant fish habitat (PacifiCorp 1998). At the time the Project was last licensed in 1998, surveys conducted by UDWR and PacifiCorp indicated brown trout, brook trout, and rainbow trout were present in the bypassed reach in small numbers, likely moving into the reach during the high spring flows and becoming stranded in pools as flows decrease in late summer (PacifiCorp 1998); however, correspondence with UDWR in 2011 indicated that there are negligible fish present in the creek from the Granite Project upstream to the Stairs Project diversion due to the elimination of stocking downstream of the diversion and seasonal reduced flows (PacifiCorp 2011). Although the steep gradients in the creek limit fish spawning and rearing habitat, pursuant to License Article 401, PacifiCorp is required to release a minimum of 4 cfs to maintain flows in the bypassed reach. Flow evaluations conducted in consultation with UDWR and USFS determined that this level of flow was necessary to maintain aesthetic resources (PacifiCorp 1998).

Downstream of the Project Area, beginning at the Granite Project intake immediately downstream of the Stairs Project powerhouse, there is no required minimum streamflow release. Natural groundwater recharge contributes approximately 7 cfs of water back into Big Cottonwood Creek just downstream of the Granite Project intake. Downstream of the BCCWTP, more urban sections of the creek support populations of brown trout, rainbow trout, mountain sucker, and speckled dace (*Rhinichthys osculus*) (Giddings et al. 2006).

6.4.2 ANADROMOUS AND SPECIAL-STATUS FISH

The National Oceanic and Atmospheric Administration defines anadromous fish as species that spend most of their life in saltwater (National Oceanic and Atmospheric Administration 2022). Analysis of aquatic habitat indicates that there are no anadromous fish present within the Project Area. Special-status fish include any state-listed sensitive species in need of conservation and any species listed as threatened or endangered under the Endangered Species Act (ESA). The following resources were analyzed to determine whether special-status fish occur in the Project Area:

- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) database query for threatened and endangered (T&E) species (USFWS 2023a)
- Utah Species of Greatest Conservation Need (SGCN) (UDWR 2021)
- USFS Region 4 sensitive species list (USFS 2016)
- Utah Natural Heritage Program (UDWR 2023d)

There are no federally listed fish species or associated critical habitats in the Project Area (USFWS 2023a). Only one species listed as a Utah SGCN, the least chub (*Iotichthys phlegethontis*), may exist within the Project Area. The Utah Natural Heritage Database indicates the species was last observed in 1953 within a two-mile radius of the Project Area, and it has not been recorded on subsequent surveys in Big Cottonwood Creek (UDWR 2021, 2023d). The only fish classified as sensitive by the USFS that has known distributions of species and/or habitat within the Project Area is Bonneville (UDWR 2021, 2023d). (Slater 2024; USFS 2016). No Bonneville cutthroat trout were sampled in reaches downstream of the Project Area surveyed in 2006 (Giddings et al. 2006), within the bypassed reach surveyed in 2000 (Schwager and Cowley 2000), nor upstream of the Project Area in reaches surveyed in 2000 and 2011, which indicates that populations may be limited (Cowley 2023; Schwager and Cowley 2000). In 2023, UDWR sampled three Bonneville cutthroat trout upstream of the Stairs Project at Cardiff Flat (Slater 2024).

6.4.3 ENVIRONMENTAL EFFECTS

The Proposed Action of obtaining a conduit exemption and subsequently surrendering the Project from additional licensing requirements under the Federal Power Act is not anticipated to cause impacts to fisheries. Upon receiving an exemption and subsequent surrender order from FERC, PacifiCorp would continue to release the minimum flow of 4 cfs for fisheries and aesthetic resources. No construction of new facilities, physical changes to current facilities, or changes to Project operations or maintenance activities are anticipated to occur that could result in impacts to fisheries resources in Big Cottonwood Creek. No environmental impacts to fisheries are expected to occur under the Proposed Action.

6.5 WILDLIFE RESOURCES

This section provides information on terrestrial and semi-aquatic wildlife known or likely to occur within the Project Area including birds, mammals, reptiles, terrestrial mollusks, and amphibians. fisheries resources, including species status fish, are covered in section 6.4. Vegetation and plants are presented in Section 6.6, but are summarized here as needed as part of the wildlife habitat descriptions and to give context to the Project Area. ESA-listed T&E species (USFWS 2023a), proposed and candidate species for ESA listing, Utah SGCN (UDWR 2021), and USFS Region 4 sensitive species (USFS 2016) are discussed in Sections 6.5.3 and 6.5.4. A general summary is provided for each major taxonomic group of common wildlife that are found in the Project Area in Section 6.5.2.

6.5.1 HABITAT

The Project is located in the lower portion of Big Cottonwood Canyon, which drains the steep western slopes of the Wasatch Mountains. The vegetation in the Project Area is variable due to the range of topography and aspect. Vegetation is sparse in rocky outcrop areas or on talus/debris flows on steep canyon sides. The south-facing hillsides are dominated by Gambel oak (*Quercus gambelii*) brush communities, interspersed with bigtooth maple (*Acer grandidentatum*) in more mesic areas; the north-facing slopes are dominated by Douglas fir (*Pseudotsuga menziesii*), interspersed with patches of quaking aspen (*Populus tremuloides*). The steep canyon walls result in a confined, high-gradient stream channel that carries high stream flows, which results in an abrupt change from arid upland habitats to riparian habitats along Big Cottonwood Creek with little or no floodplain. The riparian vegetation along the creek is narrow and is dominated by narrowleaf cottonwood (*Populus angustifolia*), box elder (*Acer negundo*), and white fir (*Abies concolor*) (PacifiCorp 1998).

Uplands provide key habitat elements for many wildlife species, including areas for foraging, hunting, cover, breeding, and migrating (UDNR 2022b). Uplands make up 893.65 acres of the vegetated habitats within the Project Area. Table 6-4 presents the acreage and location of upland habitats in the Project Area. Upland habitat types were mapped and classified by NatureServe (2009) using remote sensing.

Wetlands within the Project Area serve a wide range of functions and services and are very limited. The combination of marsh and open water habitat provide cover for waterfowl, other avian, and wildlife species. Open water habitats provide for several freshwater fish and other food sources for terrestrial wildlife. Table 6-5 and Figure 6-5 present the acreage and location of National Wetlands Inventory (NWI)–mapped wetland and waters habitats within the Project Area. The NWI mapping is based on aerial imagery interpretation and the classifications and acreages may not precisely mirror current conditions.

Littoral and open water habitats are types of wetland and waters habitat. In the Project Area, littoral habitat is limited to locations along the margins of the reservoir upstream of the Project's Storm Mountain diversion structure where water is shallow. The littoral zone receives and accumulates sediment and nutrients that can support a wide variety of plants and animals. It provides important habitat for fish and wildlife, including providing important foraging habitat for many bird species during the breeding and non-breeding season. Waterfowl feed on a variety of submerged aquatic vegetation often found within the littoral zone.

TABLE 6-4 UPLAND HABITAT TYPES IN THE PROJECT AREA

HABITAT TYPE	DESCRIPTION	APPROXIMATE ACREAGE IN PROJECT AREA
Desert and semi-desert	Dominated by xeromorphic growth forms and open to sparse cover	14.19
Forest and woodland	Characterized by mesomorphic trees with at least 10% cover	431.03
Open rock vegetation	Dominated by lichen and bryophytes living on rocky substrates	133.21
Shrub and herb vegetation	Mesomorphic shrub and herb growth forms with <10% tree cover	315.22
Total		893.65

Source: NatureServe (2009).

TABLE 6-5 NATIONAL WETLANDS INVENTORY WETLANDS AND WATERS IN THE PROJECT AREA

WETLAND AND WATER TYPE	CODE	ACRES
Freshwater pond	PABFh[a]	1.31
Riverine	R4SBC[b]	11.24
Total		12.55

Source: USGS (2023b).

[a] PABFh: Palustrine, Aquatic Bed, Semipermanent Flooded, Diked/Impounded.

[b] R4SBC: Riverine, Intermittent, Streambed, Seasonally Flooded.

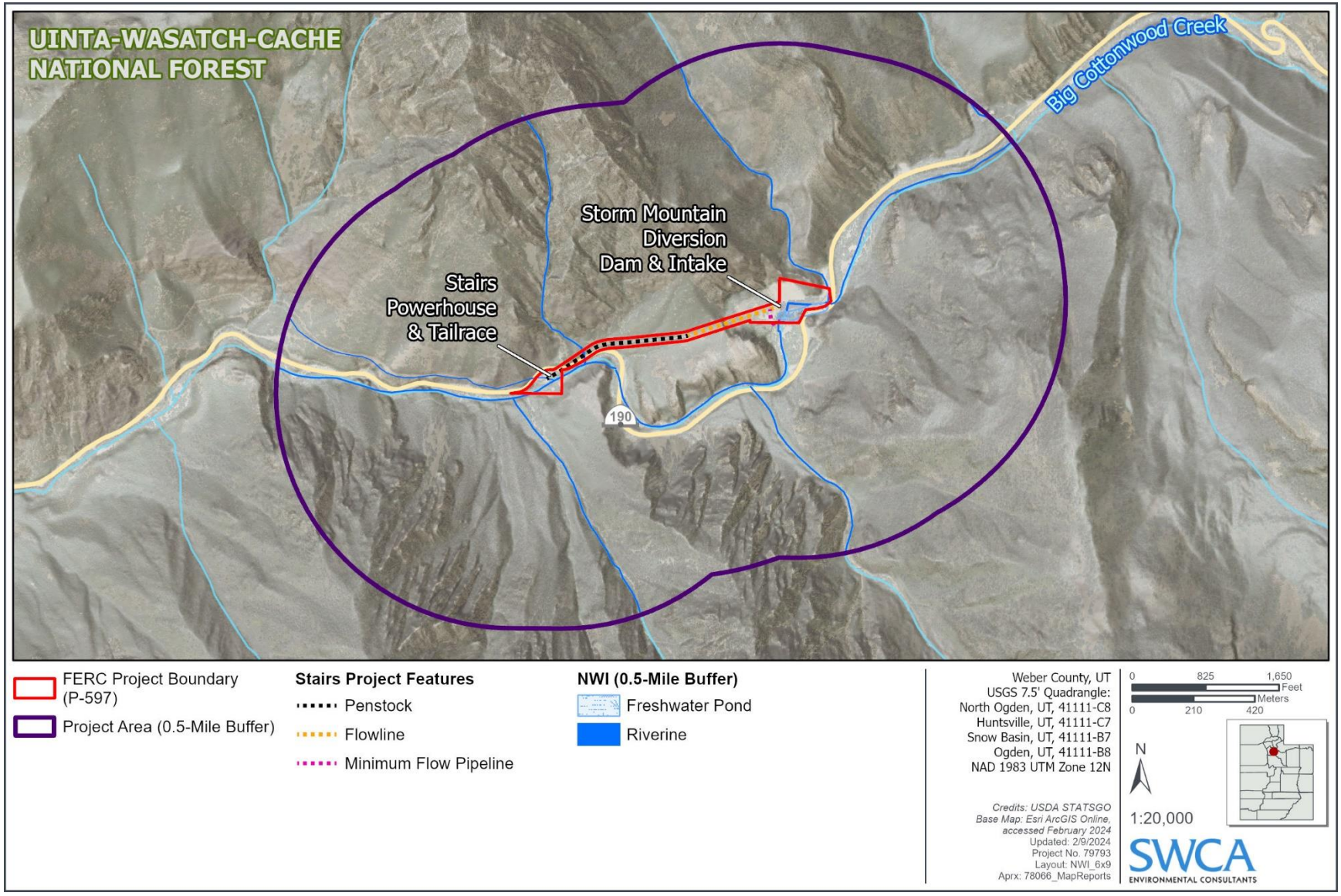

FIGURE 6-5 NATIONAL WETLANDS INVENTORY FEATURES IN THE PROJECT AREA

6.5.2 GENERAL WILDLIFE

This section provides information on the terrestrial wildlife that are likely to exist within the Project Area that are not listed as threatened or endangered by the USFWS or the Utah SGCN.

Common mammals within the Project Area include striped skunk (*Mephitis mephitis*), racoon (*Procyon lotor*), porcupine (*Erethizon dorsatum*), Uinta and Townsend chipmunks (*Neotamias umbrinus* and *N. townsendii*), chickaree (*Tamiasciurus douglasii*), several species of mice (including the deer mouse [*Peromyscus maniculatus*]), the thirteen-lined ground squirrel (*Citellus tridecemlineatus*), the rock squirrel (*Otospermophilus variegatus*), and the Uinta ground squirrel (*Urocitellus armatus*). Mule deer (*Odocoileus hemionus*) and Rocky Mountain elk (*Cervus elaphus nelsoni*) travel through the Project Area regularly, and moose (*Alces alces*) are occasionally seen as well (Global Biodiversity Information Facility [GBIF] 2023). Several bats, including the Mexican freetail bat (*Tadarida brasiliensis*), small-footed myotis (*Myotis ciliolabrum*), spotted bat (*Euderma maculatum*), and little brown myotis (*Myotis lucifugus*), may be found in the area but are not common. Large predators such as coyote (*Canis latrans*), mountain lion (*Felis concolor*), and bobcat (*Lynx rufus*) live in the area but are seldom seen (PacifiCorp 1999).

There are many species of birds found in the Project Area. Common passerine, or perching birds, include members of the wren (Troglodytidae), chickadee (Paridae), thrasher (Mimidae), kinglet and thrush (Muscicapidae), waxwing (Bombycillidae), vireo (Vireonidae), wood-warbler (Parulidae), and junco and sparrow (Emberizidae) families. The semi-aquatic passerine American dipper (*Cinclus mexicanus*) is also present in the area. Birds of prey occurring in the area include the golden eagle (*Aquila chrysaetos*) northern goshawk (*Accipiter gentilis*), sharp-shinned hawk (*Accipiter striatus*), and Cooper's hawk (*Accipiter cooperii*), although other raptors, including the prairie falcon (*Falco mexicanus*) and other falcons and eagles also use and/or migrate through the Project Area (Davies 2024; PacifiCorp 1999)

The Project Area is also home to several types of snakes such as the Great Basin rattlesnake (*Crotalus oreganus lutosus*), rubber boa (*Charina bottae*) and Great Basin gopher snake (*Pituophis catenifer deserticola*). Lizards such as the western fence (*Sceloporus occidentalis*) and side-blotch lizard (*Uta stansburiana*) are common in the sparsely vegetated upland habitats.

Amphibians found in the Project Area include the tiger salamander (*Ambystoma tigrinum*) and boreal chorus frog (*Pseudacris triseriata*) (PacifiCorp 1999).

6.5.3 THREATENED AND ENDANGERED SPECIES

The USFWS IPaC tool (USFWS 2023a) for the Project Area identifies two T&E species that could potentially occur in the Project Area: the Canada lynx (*Lynx canadensis*), which is listed as threatened under the ESA, and the monarch butterfly (*Danaus plexippus*), a candidate for listing under the ESA. There is no suitable habitat within the Project Area for the Canada lynx. Suitable habitat is present for the monarch butterfly. Although no records near the Project Area are publicly available (GBIF 2023), the species migrates across much of North America and individuals may pass over nearly any location. There is no designated critical habitat in the Project Area for Canada lynx. Critical habitat is not designated or proposed for candidates for listing such as the monarch butterfly. Table 6-6 presents the federally listed species with potential to occur in the Project Area.

Gray wolves (*Canis lupus*) are listed as endangered in the contiguous 48 states and Mexico, except for the Northern Rocky Mountain population, which spans Idaho, Montana, Wyoming, and portions of Oregon, Washington, and Utah (USFWS 2023b). The Project Area is located just south of the region in north-central Utah where gray wolves have been delisted (USFWS 2023b). The USFWS did not identify gray wolves or gray wolf critical habitat within 80 square miles of the Project Area (USFWS 2023b). Gray wolves can occupy a wide variety of habitat but require large undisturbed areas with abundant prey to hunt and den (USFWS 2006). Because the IPaC tool does not identify gray wolves as a species that may be impacted in the Project Area, and because the high prevalence of human-disturbed habitat makes it very unlikely that gray wolves would be found in the Project Area, they are not discussed further in this section.

TABLE 6-6 FEDERALLY LISTED SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	STATUS	SUITABLE HABITAT	SUITABLE HABITAT/DOCUMENTED IN PROJECT BOUNDARY
Canada lynx	*Lynx canadensis*	Threatened	Coniferous or mixed forests, with thick undergrowth for hunting, old growth with deadfall for denning and resting. Extirpated from Utah.	No/No
Monarch butterfly	*Danaus plexippus*	Candidate	Relies on milkweed (*Asclepias* spp.) for breeding, which grows in open fields, meadows, and along roadsides.	Yes/No
Gray wolf	*Canis lupus*	Endangered	Can inhabit a wide range of habitat, including temperate forests mountains, grasslands, and deserts.	No/No

Source: USFWS (2022, 2023a, 2023b, 2023c).

6.5.4 SPECIAL-STATUS SPECIES

The USFS Region 4 sensitive species list (USFS 2016) and Utah SGCN list (UDWR 2021) were evaluated to determine which special-status species have the potential to occur and/or have been documented in the Project Area. Species that are also T&E species are discussed in Section 6.5.3. This analysis found 12 special-status species with potential habitat in the Project Area (Table 6-7).

There are three special-status bat species that have potential to occur in the Project Area during the summer months: Townsend's big-eared bat (*Corynorhinus townsendii*), long-legged myotis (*Myotis volans*), and long-eared myotis (*Myotis evotis*). These species roost in tree hollows, rock crevices, or under loose bark. Roosting habitat is available in the Project Area, but no surveys have been completed to identify potential or actual roosting areas. These bats may winter in Utah, finding shelter in caves and mines (NatureServe 2023a, 2023b).

Five special-status bird species have potential to occur in the Project Area (see Table 6-7). Bald eagles (*Haliaeetus leucocephalus*) have suitable habitat in the Project Area and individuals have been seen in surrounding areas, but there are no recorded observations of bald eagles in the Project Area (GBIF 2023; PacifiCorp 1999). Peregrine falcons (*Falco peregrinus*) and black swifts (*Cypseloides niger*) may use the Project Area for foraging or dispersal routes, but no suitable nesting habitat exists in the Project Area. Lewis' woodpeckers (*Melanerpes lewis*) and olive-sided flycatchers (*Contopus cooperi*) may use the Project Area for breeding and foraging.

One special-status insect, the western bumble bee (*Bombus occidentalis),* has potential to occur within the Project Area as suitable habitat is present.

The northern leopard frog (*Lithobates pipiens*) is the only special-status amphibian species with potential to occur in the Project Area but has no known occurrence in Big Cottonwood Creek.

One special-status mollusk, the rustic ambersnail (*Succinea rusticana*), was identified as having potential habitat in the Project Area; however, this species is presumed to be extirpated from Utah, and all knowledge regarding its habitat is from historical observations.

TABLE 6-7 SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	STATUS	SUITABLE HABITAT	DESIGNATION		LIKELY TO OCCUR IN PROJECT AREA
				SGCN	USFS	
Northern leopard frog	*Lithobates pipiens*	G5, S3	Riparian corridors, wetlands, and wetland upland mosaics.	Yes	–	No
Rustic ambersnail	*Succinea rusticana*	G4, SH	Riparian areas near rivers, streams, lake shores, and bogs, in and under vegetation.	Yes	–	No

COMMON NAME	SCIENTIFIC NAME	STATUS	SUITABLE HABITAT	DESIGNATION		LIKELY TO OCCUR IN PROJECT AREA
				SGCN	USFS	
Olive-sided flycatcher	*Contopus cooperi*	G4, S3	Breed in various forest and woodland habitats including subalpine coniferous forest and mixed coniferous-deciduous forest. Nest in standing dead trees.	Yes	–	Yes
Black swift	*Cypseloides niger*	G4, S2	Forage over forests and open areas, nest behind or next to waterfalls and wet cliffs.	Yes	–	Yes
Peregrine falcon	*Falco peregrinus*	G4, S3	Cosmopolitan bird occupying mountain, open forests, and human population centers. Rely on cliffs and inaccessible areas for nesting.	Yes	–	Yes
Bald eagle	*Haliaeetus leucocephalus*	G5, S2B, S4N	Occur near aquatic habitats that have open water for foraging.	Yes	–	Yes

COMMON NAME	SCIENTIFIC NAME	STATUS	SUITABLE HABITAT	DESIGNATION		LIKELY TO OCCUR IN PROJECT AREA
				SGCN	USFS	
Lewis' woodpecker	*Melanerpes lewis*	G4, S3	Breed in open forest and woodland, including oak and coniferous forest and riparian woodlands. Require an open tree canopy, a brushy understory with ground cover, and dead trees for nest cavities.	Yes	–	Yes
Western bumble bee	*Bombus occidentalis*	G3, S1	Found in a range of habitats, including mixed woodlands, farmlands, urban areas, roadsides, montane meadows, and prairie grasslands.	Yes	–	Yes
Gray wolf	*Canis lupus*	G5, SX	Can occupy all habitat types except barren areas. Most recent reports are from montane areas.	Yes	Threatened	No

COMMON NAME	SCIENTIFIC NAME	STATUS	SUITABLE HABITAT	DESIGNATION		LIKELY TO OCCUR IN PROJECT AREA
				SGCN	USFS	
Townsend's big-eared bat	*Corynorhinus townsendii*	G4, S3	Mesic habitats characterized by coniferous and deciduous forests. Nests in rock outcrops and caves.	Yes	–	Yes
Long-legged myotis	*Myotis volans*	G4, S3	Mountainous areas wooded with coniferous trees and occasionally riparian and desert habitats. Daytime roosts in tree hollows or under loose bark, hibernacula are in caves and mines.	Yes	–	Yes
Long-eared myotis	*Myotis evotis*	G5, S3	Lowland, montane, and subalpine woodlands, forests, shrublands and meadows.	Yes	–	Yes

Source: NatureServe (2023a–l); UDWR (2021); USFS (2016).Note: G3 = global, vulnerable; G4 = global, apparently secure; G5 = global, secure; S1 = subnational, critically imperiled; S2 = subnational, imperiled; S2B = breeding population imperiled; S3 = subnational, vulnerable; S4 = subnational, apparently secure; S4N = nonbreeding population apparently secure; SH = subnational, possibly extirpated; SX = subnational, presumed extirpated.

6.5.5 ENVIRONMENTAL EFFECTS

The Proposed Action would not result in construction of new facilities, physical changes to current facilities, or changes to Project operations, maintenance activities, or ownership. No environmental effects on any wildlife resources are expected under the Proposed Action.

6.6 BOTANICAL RESOURCES

This section provides a summary of the botanical resources known or likely to occur within the Project Area. Habitat within the Project Area varies by topography and aspect as it changes from the higher elevation of the Storm Mountain Dam to the lower elevation of the powerhouse and tailrace. The steep canyon walls along the creek provide an abrupt change from riparian to arid habitat types (PacifiCorp 1998). There are rare, threatened, and/or endangered plant species documented within the Project Area (see Section 6.6.5). Noxious weeds are monitored and addressed as required through permitting regulations.

6.6.1 UPLAND HABITAT

There are four main classifications of upland habitat types in the Project Area: desert and semi-desert, forest and woodland, open rock vegetation, and shrub and herb vegetation. Vegetation in the upland areas is often lacking due to the presence of rockslides, talus slopes, and steep canyon sides (PacifiCorp 1998); however, the upland shrubs of the valley typically include shadscale (*Atriplex confertifolia*), winterfat (*Krascheninnikovia lanata*), rubber rabbitbrush (*Chrysothamnus nauseosa*), and big sage (*Artemisia tridentata*), as well as various annual and perennial grasses, both native and introduced. Above Big Cottonwood Creek, on the dry hillsides and slopes, and along the penstock route, vegetation generally consists of Gambel oak brush with a mix of big sage, bigtooth maple, bitterbrush (*Purshia glandulosa*), sumac (*Rhus trilobata*), and rubber rabbitbrush (PacifiCorp 1998; Salt Lake County 2003). As elevation increases, softwoods such as white fir, Douglas fir, blue spruce (*Picea pungens*), and limber pine (*Pinus flexilis*) become more evident. Common hardwood species found above the creek consist of aspen , serviceberry (*Amelanchier utahensis*), and mountain ash (*Sorbus americana*). Snowberry (*Symphoricarpos oreophilus*), subalpine fir (*Abies lasiocarpa*), Engelmann spruce (*Picea engelmannii*), and willow (*Salix* sp.) are usually found in the subalpine and alpine areas (Salt Lake County 2003).

6.6.2 RIPARIAN HABITAT

Riparian habitat generally refers to areas dominated by plants and trees along stream banks, lakes, or ponds. Vegetative species within riparian habitats are often hydrophytic and are submerged in water for part of the growing season. Common riparian tree species include cottonwood (*Populus* sp.), willow, and water birch (*Betula nigra*). Typical riparian shrubs in this habitat include red osier dogwood (*Cornus sericea*), golden currant (*Ribes aureum*), willow, and Wood's rose (*Rosa woodsia*) (Salt Lake County 2003). Riparian habitat within the Project Area includes most of the corridor along Big Cottonwood Creek. Big Cottonwood Creek is a confined, high-gradient stream channel that carries high stream flows with little or no floodplain; therefore, riparian vegetation along the creek is not well developed and is dominated by narrowleaf cottonwood, box elder, and white fir (PacifiCorp 1998).

6.6.3 WETLAND HABITAT

According to the USFWS NWI mapping, few aquatic resources were identified within the Project Area. Aquatic resources mostly included riverine systems and freshwater ponds (USFWS 2023d) (see Figure 6-5). Surprisingly, Big Cottonwood Creek was classified as an intermittent riverine system streambed that is seasonally flooded (R4SBC). The reservoir behind the Project's Storm Mountain Dam was classified as an impounded, palustrine, semi-permanently flooded aquatic bed (PacifiCorp 1998). Wetland vegetative cover in proximity to Big Cottonwood Creek reaches downstream of the Project (in urban areas) and is generally composed of cattails (*Typha* sp.), bulrushes (*Scirpus* sp.), and various types of sedges (*Carex* sp.); there is very little vegetated wetland habitat within the Project Area, consisting mostly of narrow riparian bands of willow and dogwood overstory with a sedge understory (Salt Lake County 2003).

6.6.4 NOXIOUS WEEDS

Salt Lake County designates noxious weeds according to the State of Utah Noxious Weed List in which each weed is categorized into classes based on status and state presence (Salt Lake County 2020; Utah Department of Agriculture and Food 2022) (Table 6-8). In total, there are 54 noxious weeds listed as potentially occurring in the Project Area. Class 1A species are not known to occur in Utah and, therefore, are not included in this analysis. Class 1B species are listed as Early Detection Rapid Response species and are known only from limited populations throughout the state. They pose a serious threat to the state and are considered high priority for control. Class 2

species occur throughout the state but at a level where eradication may be possible. Therefore, Class 2 species also receive high priority for control. Class 3 species occur throughout the state in populations where eradication would be difficult. Control efforts are focused on eliminating new or expanding populations. Class 4 species are prohibited from sale in the retail industry and, therefore, are not included in this analysis.

Although they are not listed as noxious weeds, the following species are considered invasive in Salt Lake County: cereal rye (*Secale cereale*), cheatgrass (*Bromus tectorum*), and sulfur cinquefoil (*Potentilla recta*). The Salt Lake County's weed program tool, Early Detection and Distribution Mapping Systems (EDDMapS) confirmed that the above-listed invasive species were documented within the county; however, this does not mean that they are located within the Project Area. Very few state noxious weeds are known to occur in the Project Area, and mostly consist of Class 3 thistles, bindweed (*Convolvulus* spp.), houndstongue (*Cynoglossum officianale*), and puncture vine (*Tribulus terrestris*).

TABLE 6-8 NOXIOUS WEEDS POTENTIALLY OCCURRING IN THE PROJECT AREA

SCIENTIFIC NAME	COMMON NAME	STATE OF UTAH NOXIOUS WEED LIST
Acroptilon repens	Russian knapweed	Class 3
Aegilops cylindrica	Jointed goatgrass	Class 3
Alhagi maurorum	Camelthorn	Class 1B
Alliaria petiolata	Garlic mustard	Class 1B
Arundo donax	Giant reed	Class 1B
Brassica elongata	Elongated mustard	Class 1B
Brassica tournefortii	African mustard	Class 1B
Cardaria spp.	Hoary cress (whitetop)	Class 3
Carduus nutans	Musk thistle	Class 3
Centaurea calcitrapa	Purple star-thistle	Class 1B
Centaurea diffusa	Diffuse knapweed	Class 2
Centaurea solstitialis	Yellow star-thistle	Class 2
Centaurea stoebe	Spotted knapweed	Class 2
Centaurea virgata	Squarrose knapweed	Class 2
Chondrilla juncea	Rush skeletonweed	Class 2
Cirsium arvense	Canada thistle	Class 3

SCIENTIFIC NAME	COMMON NAME	STATE OF UTAH NOXIOUS WEED LIST
Conium maculatum	Poison hemlock	Class 3
Convolvulus spp.	Field bindweed (wild morning glory)	Class 3
Cynodon dactylon	Bermudagrass	Class 3
Cynoglossum officianale	Houndstongue	Class 3
Echium vulgare	Blueweed (viper's bugloss)	Class 1B
Elymus repens	Quackgrass	Class 3
Euphorbia esula	Leafy spurge	Class 2
Galega officinalis	Goat's rue	Class 1B
Hyoscyamus niger	Black henbane	Class 2
Hypericum perforatum	Common St. Johnswort	Class 1B
Isatis tinctoria	Dyer's woad	Class 2
Lepidium latifolium	Perennial pepperweed (tall whitetop)	Class 3
Leucanthemum vulgare	Oxeye daisy	Class 1B
Linaria dalmatica	Dalmatian toadflax	Class 2
Linaria vulgaris	Yellow toadflax	Class 2
Lythrum salicaria	Purple loosestrife	Class 2
Onopordum acanthium	Scotch thistle (cotton thistle)	Class 3
Phragmites australis ssp.	Phragmites (common reed)	Class 3
Polygonum cuspidatum	Japanese knotweed	Class 1B
Scorzonera laciniata	Cutleaf vipergrass	Class 1B
Sorghum halepense and *Sorghum almum*	Perennial sorghum	Class 3
Taeniatherum caput-medusae	Medusahead	Class 2
Tamarix ramosissima	Tamarisk (saltcedar)	Class 3
Tribulus terrestris	Puncturevine (goathead)	Class 3
Ventenata dubia	Ventenata	Class 1B

Source: Salt Lake County (2020); Utah Department of Agriculture and Food (2022).

6.6.5 RARE, THREATENED, AND ENDANGERED SPECIES

The following resources were evaluated to determine which threatened, endangered, sensitive, or rare plants have the potential to be present in or near the Project Area based on known distributions and habitat characteristics:

- USFWS IPaC database query for T&E species (USFWS 2023a)

- USFS Intermountain Region 4 threatened, endangered proposed, and sensitive species list (USFS 2016)
- Utah Rare Plant Guide (Utah Native Plant Society [UNPS] 2023)
- Utah's SGCN (UDWR 2021)

The USFWS IPaC query indicated that no T&E plant species are located within the Project Area; however, other resources such as the USFS list, noted above, identified the potential for sensitive plant species to occur within the Project Area.

The USFS organize their threatened, endangered, proposed, and sensitive species list by forest. In this case, the analysis focused on species identified within the UWCNF, in which the Project is located. In total, there was one endangered, three threatened, and several sensitive plant species that have known distributions and/or habitat within the UWCNF. Table 6-9 presents all the endangered, threatened, and sensitive species identified as being known to occur or likely to occur based on distribution of species or habitat in the UWCNF, which encompasses 2.2 million acres and extends well beyond the Project Area (USFS 2016). Inclusion on the USFS Region 4 list does not indicate presence in the Project Area.

To further determine the likelihood of species within the Project Area (based on habitat), each species in Table 6-9 was analyzed by searching the Utah Rare Plant Guide, which narrowed down specific habitat characteristics and requirements such as elevation, soil type, and surrounding vegetation (UNPS 2023). The results of the search are shown in the last column of Table 6-9.

TABLE 6-9 U.S. FOREST SERVICE REGION 4 ENDANGERED, THREATENED, AND SENSITIVE SPECIES POTENTIALLY OCCURRING IN UINTA-WASATCH-CACHE NATIONAL FOREST

SPECIES NAME	COMMON NAME	USFS STATUS	LIKELY TO OCCUR IN PROJECT AREA (BASED ON HABITAT)
Angelica wheeleri	Wheeler's angelica	S[a]	No
Astragalus desereticus	Deseret milkvetch	T[b]	No
Botrychium crenulatum	Dainty moonwort	S[a]	No
Botrychium lineare	Slender moonwort	S[b]	No

SPECIES NAME	COMMON NAME	USFS STATUS	LIKELY TO OCCUR IN PROJECT AREA (BASED ON HABITAT)
Corydalis caseana ssp. *brachycarpa*	Sierra fumewort or Wasatch fitweed	S[a]	No
Cypripedium fasciculatum	Brownie lady's slipper	S[a]	No
Cypripedium parviflorum	Lesser yellow lady's slipper	S[a]	No
Dodecatheon utahense	Wasatch shooting star	S[a]	No
Draba brachystylis	Wasatch draba	S[a]	Yes
Draba burkei	Burke's draba	S[b]	Yes
Draba globosa	Rockcress draba	S[a]	No
Draba maguirei	Maguire draba	S[a]	No
Erigeron cronquistii	Cronquist daisy	S[a]	No
Erigeron garrettii	Garrett's fleabane	S[a]	No
Eriogonum loganum	Logan buckwheat	S[a]	No
Ivesia utahensis	Utah ivesia	S[a]	No
Jamesia americana var. *macrocalyx*	Wasatch jamesia	S[a]	No
Lepidium montanum var. alpinum	Wasatch pepperwort	S[b]	Yes
Lesquerella garrettii	Garrett bladderpod	S[a]	No
Primula maguirei	Maguire's primrose	T[a]	No
Papaver radicatum var. *pygmaeum*	Artic poppy	S[a]	No
Penstemon compactus	Cache beardtongue	S[a]	No
Phacelia argillacea	Clay phacelia	E[a]	No
Potentilla cottamii	Cottam cinquefoil	S[a]	No
Spiranthes diluvialis	Ute ladies'-tresses orchid	T[b]	No
Thelesperma pubescens	Uinta green thread	S[a]	No
Viola franksmithii	Smith violet	S[a]	No

Source: UDWR (2021); USFS (2016); UNPS (2023); and Little and McKinney (1992).
Note: E = endangered; S = sensitive; T = threatened.
[a] Known species/habitat within UWCNF.
[b] Likely/potential habitat within UWCNF.

Four plant species observed in Table 6-9 also appeared in Utah's SGCN list: Deseret milkvetch (*Astragalus desereticus*), Maguire's primrose (*Primula maguirei*), clay phacelia (*Phacelia argillacea*), and Ute ladies'-tresses orchid (*Spiranthes diluvialis*); however, no disturbance to the soil or vegetation is proposed; therefore, it is not likely that these species (if any occur, which is

unlikely given their specialized habitat requirements and not having ever been observed in Big Cottonwood Canyon, the Project Vicinity, and/or the Project Area) would be impacted by the Project.

6.6.6 ENVIRONMENTAL EFFECTS

There is no disturbance associated with the Proposed Action that could impact upland, riparian, or wetland habitats or special-status species. No ground-disturbing activities are anticipated that could result in the spread or establishment of noxious weeds. No environmental effects on botanical resources are expected under the Proposed Action. Additionally, no studies or PME measures are recommended.

6.7 CULTURAL AND HISTORIC RESOURCES

Pursuant to 18 CFR 5.6(d)(3)(x) and (xii), this section provides a brief discussion of the cultural history of the Wasatch Front; a description of the known cultural and historic resources within the Project Area; a description of Indigenous Tribes, lands, and interests in the vicinity of the Project; and a statement of environmental effects potentially resulting from the Proposed Action.

Cultural resources may include the built environment, archaeological resources, historic resources, places associated with cultural practices and beliefs, and cultural landscapes. Built environment resources include buildings, structures, objects, and districts. Archaeological resources may include pre- and post-contact archaeological sites associated with Indigenous Tribes, or historic-era sites (50 years or older) associated with activities that are directly or indirectly documented in the historic record, may be linear or non-linear in nature, and may also be grouped into districts. Historic resources may also include resources such as National Historic Landmarks and National Historic Trails. This section specifically focuses on the potential environmental effects on historic properties, which are defined in the National Historic Preservation Act as historic properties that are listed in or are eligible for listing in the NRHP (36 CFR 60). Section 106 of the National Historic Preservation Act directs federal agencies to take into account the effect of any undertaking (that is, a federally funded or assisted project) on historic properties (36 CFR 800).

6.7.1 PRECONTACT PERIOD CONTEXT

The Project is located within the Eastern Great Basin culture area, which has been the subject of extensive research over the last century (Aikens and Madsen 1986; D'Azevedo 1986; Jennings 1978). Evidence of precontact human occupation in the Great Salt Lake Basin and nearby areas began after the Terminal Pleistocene and continues until Euro-American explorers and settlers began providing a written history of the region. Detailed discussions used as key sources for this summary are found in Madsen et al. (2005), Madsen and Schmitt (2005), Janetski and Smith (2007), as well as sources for the overall Great Basin region (Beck and Jones 1997; Grayson 1993; Kelly 1997; Madsen and Simms 1998). These sources provide greater detail on the broader region's generalized prehistory.

6.7.2 PREHISTORY OF THE EASTERN GREAT BASIN

Following the general time frames used by Madsen et al. (2005) and Madsen and Schmitt (2005), the region's prehistory is divided into four broad precontact time periods: the Paleoarchaic (>11,000–8,000 radiocarbon years before present [RCYBP]), the Archaic (8,000–2,500 RCYBP), the Fremont (150 B.C.–A.D. 1450), and the Late Prehistoric (A.D. 1450–1847). The Late Prehistoric period ended when Euro-American explorers and settlers arrived in the region. It is important to emphasize the suggestion by Madsen et al. (2005) that there was considerable adaptive variability, and perhaps also ethnic diversity, within the region during any of these periods. Additionally, early documents describe groups venturing into the Salt Lake Valley area but rarely staying long or living there permanently. In later prehistory, this area served as a buffer zone for Indigenous Tribes living to the north and south of the Salt Lake Valley (Keller 2001).

6.7.2.1 PALEOARCHAIC (>11,000–8,000 RCYBP)

The Paleoarchaic period, owing to the depth of time, has the least amount of thoroughly understood diagnostic sites. Radiocarbon dates from Danger Cave in western Utah provide an approximate onset for the period of 11,000 RCYBP to approximately 13,000 calendar years ago and are generally accepted as the earliest evidence for precontact occupation in the region (Beck and Jones 1997; Graf and Schmidt 2007; Jennings 1957). A systematic investigation of sites from this period has not been possible, and the period is mostly known from the distribution of

diagnostic projectile point types and inferences from nearby regions. Occupation during this period in the Great Basin is primarily known from surface artifacts rather than excavated contexts (Jones and Beck 1999:83). Diagnostic projectile points include lanceolate and fluted lanceolate types such as Clovis and Folsom and the more recent Great Basin Stemmed points. There are few examples of such points that have been dated, and their relationships are not clearly understood because excavated sites in Utah during this period are extremely rare. Surface sites with stemmed points are more common in Utah but do not provide the depth of data required for a more robust understanding of precontact lifeways during the period (Copeland and Fike 1988).

It is generally accepted that the primary adaptation used during this period was a shift away from megafauna to focusing on lacustrine and marsh resources created during the regression of Lake Bonneville following the end of the Pleistocene (Schmitt and Madsen 2005; Schroedl 1991). Exploitation may have been relatively generalized, including aquatic resources like mollusks, fish, and waterfowl as well as small mammals (Jones and Beck 1999:89), forming an almost "Archaic"-like pattern (Schroedl 1991:7); however, any understanding of subsistence during this period is inferential, based primarily on the location of projectile points found in disparate, non-integrated surveys, and a few, very limited excavations (Schroedl 1991; Seddon 2005). To date, only sites with Paleoarchaic components have been excavated and are relatively well reported in Utah, including Danger Cave (Jennings 1957), Hogup Cave (Aikens 1970), the Lime Ridge site (Davis 1989), the Montgomery site (Davis 1985), the Silverhorn site (Gunnerson 1956), and 42MD300 (Simms and Lindsay 1989) (see Schroedl 1991:12). Further investigation is needed to better delineate the Paleoarchaic period settlement and subsistence strategies in Utah.

6.7.2.2 ARCHAIC (8,000–2,500 RCYBP)

The close of the Pleistocene and the onset of the Holocene are defined in North America by a warming and drying trend that resulted in the retreat of the glaciers and a series of changes in flora and fauna (Antevs 1948; Bell and Walker 1992; Grayson 1993). The Archaic Period, as defined by hunting and gathering adaptations, is a long period in the Great Basin, and can arguably be extended to the period of Euro-American contact. In various areas of the region, the period has been subdivided into early, middle, and late periods or into sub-phases (see Aikens and Madsen 1986; Fowler and Madsen 1986). Diagnostic artifacts and other attributes of

material culture are associated with these subdivisions of the Archaic Period with greater and lesser degrees of success in applicability. A major problem for the definition of the Archaic Period in the Project Area is that this period is primarily defined on the basis of sites along the margins or edges of Utah's West Desert. Little research has been conducted in the immediate Project Area with the goal of refining the Archaic Period chronology. Although the terms "Early," "Middle," and "Late," or the Aikens and Madsen (1986) phase designations (Wendover, Black Rock), have been applied to the Archaic Period in this area, at present there are no controlled and/or stratified excavations or large-scale projects that define changes in material culture associated with distinct temporal periods. Consequently, it is difficult to subdivide the overall Archaic Period with a high degree of confidence.

Human populations underwent changes related to these transitions and shifts in adaptive strategies and these changes are visible in the material record of the early and middle Holocene. These changes have been characterized continent-wide through use of the term "Archaic" for a pre-horticultural period of hunting and gathering that focused on the new environments of the Holocene (Willey and Phillips 1958). Human occupation continued in low-elevation locations where lakeshore and other wetland habitats remained. In the Bonneville Basin, this is documented at sites such as Danger Cave, Hogup Cave, and Bonneville Estates Shelter (Madsen et al. 2005); however, such habitats were becoming increasingly scarce, and higher-elevation upland areas were also frequently occupied (Madsen 2005).

Major shifts in material culture include a reliance on smaller projectile points such as Humboldt, Pinto, Gatecliff, and Elko points. These points were mounted as a dart points and delivered with spear and atlatl (Hester 1973; Holmer 1978). The Archaic Period is also characterized by an increase in the frequency and type of grinding and milling stones, such as manos and metates, used for seed processing (Grayson 1993:244–246), which indicates an expansion of diet breadth. Basketry and netting were also important for lacustrine resources and likely also used for hunting small vertebrates (such as rabbits) (Aikens 1970; Broughton et al. 2008; Byers and Broughton 2004).

Archaic Period sites in the region are typified by open-air lithic artifact scatters of various sizes and complexity, consisting mostly of reduction and limited activity sites. These are typically

surface sites noted in a wide variety of contexts, although rock shelters are known from surrounding mountain areas (e.g., Lindsay and Sargent 1979). Three rock shelters in the Oquirrh Mountains west of the Project Area have been investigated (Enger 1942; Madsen 1983; Steward 1937). Most sites lack evidence of habitation features and storage structures that might imply long-term single use episodes. Most also exhibit extensive evidence of reoccupation, often into much later periods (e.g., Hull 1994), which adds to the difficulty of identifying the nature of Archaic Period occupations.

Overall, the Archaic Period in the Project Area is relatively well known yet remains defined in a general manner. The general tendency of sites in the region to be reoccupied, resulting in multicomponent occupations, makes further delineation difficult. Thus, there is no large sample of dated, single component Archaic Period occupations that could be used to define changes in activities and settlement patterns. Furthermore, preservation of organic materials is poor in the open-air sites that typify Archaic Period occupations in the region. This reduces the ability to fully define activities at sites and leads to inferences that most sites represent lithic reduction locales. Thus, the types of data that might be used to define subdivisions of the period beyond the very general "early, middle, late" characterization, or beyond the types of changes defined for regions around the Project Area, are currently lacking. This is not to say that the period is unknown in the region. Rather, any further refinements to an understanding of subsistence and settlement patterns over the multi-thousand-year span of the period depend on further research.

6.7.2.3 FREMONT (150 B.C.–A.D. 1450)

The Fremont period corresponds to the latter portion of the first millennium A.D. where populations developed horticulture and shifted to more sedentary lifeways. The distribution of Fremont ceramics covers an area even larger than that in which agriculture was practiced, ranging from what is now central Nevada into southern Idaho and southwestern Wyoming (e.g., Hockett and Morgenstein 2003). The date range that Madsen and Schmitt (2005) use for this period is 2,100 to 500 RCYBP, which calibrates to approximately 150 B.C. to A.D. 1450 (see also Massimino and Metcalfe 1999); calibrated B.C. and A.D. dates will be used from this point forward.

The use of varied adaptations during precontact occupation of the Eastern Great Basin continued during the Fremont period. Although initially characterized as a "culture" with several "variants," the Fremont have recently been reconceived as a "complex" that adopted a wide variety of subsistence, mobility, and habitation strategies (Barlow 2002; Coltrain and Leavitt 2002; Madsen and Simms 1998). The Fremont, therefore, are difficult to conceive of as a coherent and identifiable culture in the sense of an ethnic group. Rather, aspects that characterize various groups identified as Fremont appear to suggest that what archaeologists define as "Fremont" is more of a complex of traits and activities (such as agriculture and sedentism), that varied over the entire region. Given this, the Fremont can be considered to encompass "full-time sedentary farmers, full-time mobile foragers, sedentary foragers, seasonal farmer/foragers, and people who could have been all of these at one time or another in their lives" (Madsen and Simms 1998:323).

Numerous Fremont sites or sites with Fremont components have been reported from the eastern Great Basin and surrounding areas (see overview in Madsen and Schmitt 2005:16–18). Major sites appear to be primarily situated along the deltas of the Bear, Ogden/Weber, and Jordan Rivers, built on natural levees above the surrounding wetlands (Madsen 1986). Fremont materials appear in the western Bonneville Basin at sites such as Danger and Hogup Caves, and others, showing ongoing use of those sites. Fremont complex sites range from large, settled villages to more ephemeral camps that suggest a high degree of mobility, whereas caves also continued to be used (e.g., Aikens 1970; Bryan 1977). Local variations on subsistence practices are common but generally wild plant and animal resources that were harvested in the region are used alongside domesticates (Madsen et al. 2005:42–43). Variability in subsistence strategies from hunting and gathering to intensive farming allowed for nuance and is a defining characteristic of the Fremont complex.

Material culture associated with the Fremont complex consist of several types of grayware pottery, an art style consisting of trapezoidal figurines depicted in rock art and on clay figurines, and "Utah-type" metates characterized by a small secondary grinding surface. Elko series dart points continued to be used until ca. A.D. 200 when the bow and arrow began to be used; this is evidenced by the appearance of the Rosegate point type. Desert side-notched and Cottonwood triangular points appear near the end of the Fremont period and may reflect the replacement of

the unbacked bow by sinew-backed, recurved bows (Madsen et al. 2005). A number of artifact types, including ground stone pestles, carved stone tablets, and slate knives, are also unique to this region (Marwitt 1986:168). Organic materials, such as one-rod-and-bundle basketry and deer- or sheep-hide moccasins, are less common in the archaeological record due to their less permanent nature; examples mostly come from cave sites but are another distinctive indicator for the Fremont. Maize and evidence of intentional farming appears in the archaeological record of the southern Wasatch Plateau at approximately 150 B.C. (see discussions in Barlow 2002; Madsen and Simms 1998).

Residential structures vary considerably. Villages in the vicinity of the Wasatch Plateau include multi-room adobe pueblos after ca. A.D. 800; these were preceded by pit structures with adjacent aboveground granaries and even earlier, before A.D. 500 or so, by ephemeral structures with subterranean storage pits. Known Fremont Complex multi-household occupations along the margins of Great Salt Lake are also characterized by a general lack of stone masonry architecture, with shallow pit structures most common. Substantial structures become uncommon as one moves west from the Wasatch Plateau. Maize and associated technology such as pottery, basin-shaped metates, and subterranean storage pits then spread throughout much of the rest of the Fremont area by ca. A.D. 500. Based on features and artifacts present, occupations in rock shelters appear to represent seasonal occupations (Marwitt 1986:169).

Overall, the Formative Period in the region appears to have been characterized by a variety of occupations. Beginning ca. A.D. 1000, Fremont sites and material culture gradually become less common in the archaeological record; they then decline steeply in frequency at ca. A.D. 1300 and are gone altogether by ca. A.D. 1450 (Massimino and Metcalfe 1999). The result of this is highly contested, but one possibility is the replacement of the Fremont population by incoming Numic-speaking groups.

6.7.2.1 LATE PREHISTORIC (A.D. 1450–1850)

The Late Prehistoric period in the eastern Great Basin begins with the disappearance of agriculture and Fremont material culture and lasts until the Historic period. The sudden appearance of smaller triangular arrow points and a distinctive brownware ceramic is seen as evidence of an expansion of Numic-speaking peoples into the region from the Mojave Desert

area (Madsen 1975; Bettinger and Baumhoff 1982; Grayson 1993; Kelly 1997; Madsen and Rhode 1994). Originally based on linguistic data (Lamb 1958), the hypothesis is that Numic speakers spread across the Great Basin from a homeland in what is now southeastern California beginning sometime before A.D. 1000 (Bettinger 1991; Bettinger and Baumhoff 1982, 1983; Carlyle et al. 2000; Kaestle and Smith 2001; Young and Bettinger 1992).

Whether the changes noted in the material culture (e.g., the appearance of new projectile point types and pottery) represent replacement of local populations, absorption into new linguistic and cultural groups, or simply cultural change by Indigenous populations remains an open debate (see Aikens and Witherspoon 1986; Lyneis 1982).

Perhaps the most significant difference between occupations of the Formative and Late Prehistoric Periods is the shift away from maize agriculture and the return to a predominately hunting and gathering lifeway reflective of a highly mobile population, as argued by Madsen and Schmitt (2005). Known Late Prehistoric sites in the Eastern Great Basin are most common in riparian or lakeside wetland habitats (e.g., Janetski and Smith 2007; Simms and Heath 1990), though caves and upland areas were also used (e.g., Aikens 1970; Janetski 1985; Janetski and Smith 2007; Simms and Lindsay 1989). Thus, the most intensive archaeological investigations of this period have focused on sites along the margins of Utah Lake, to the southwest of the Project Area (Janetski 1994:176). Exploitation of wetland and aquatic resources appears to have been the focus of occupation at these sites (Janetski 1994:176), but resources from a variety of other settings also continued to be used. Other notable changes in occupation include a reduction in the number of occupations, a tendency for Late Prehistoric Period occupations to be located at lower elevations than during previous periods, and an increase in site size as a probable consequence of continual reoccupation of the same locale (Janetski 1994:159–161).

Material culture changed significantly as well, with the one-rod-and-bundle basketry of the Fremont period being replaced by other types, and the use of smaller arrow points such as Desert Side-notched and Cottonwood Triangular points. Pottery shifted from Fremont grayware to Intermountain Brownware or Shoshonean Ware types. Chipped stone assemblages, basketry, and ceramics have all been used as archaeological evidence of the Numic expansion (e.g., Madsen and Rhode 1994).

Late Prehistoric occupations have also been investigated in the Salt Lake Valley. Investigations at the Salt Lake Airport site (Allison 1998; Allison et al. 1997) and at 42DV2 (Colman and Colman 1998) have revealed substantial Late Prehistoric period occupations along the margins of Great Salt Lake. Janetski and Smith (2007) provides a thorough overview of Late Prehistoric residential sites located in wetland settings to the east along the Wasatch Front. Late Prehistoric occupations have mostly consisted of small components of larger, multi-component sites, and appear to represent short-term occupations (Spaulding 1994).

By the period of historical contact with Euro-American cultures in the late 1700s, the present ethnographically known groups inhabited the region: the Ute, the Shoshone, and the Paiute; all of which speak Numic languages.

6.7.3 HISTORIC PERIOD CONTEXT

In 1847, pioneers from The Church of Jesus Christ of Latter-day Saints (the LDS Church) settled in the Salt Lake Valley and established it as their home. Within four months, 1,700 people lived in the valley, and by the next year, the population was nearly 5,000 individuals (Sillitoe 1996). With all natural resources being declared common property by officials of the LDS Church, the early settlers of Salt Lake County focused on cattle and pursuing subsistence agriculture, settling near the waterways in the valley and diverting water for irrigating their fields. It became apparent that the mountain streams, including Big Cottonwood Canyon, would be extremely important for the subsistence strategies of the new and fast-growing population of settlers, which all received land and water rights from the LDS Church (Sillitoe 1996:31). Euro-American settlement in Big Cottonwood Canyon and the surrounding areas began early in the history of the Salt Lake Valley. In 1848, only one year after the first Latter-day Saint pioneers settled in Utah, some moved into the area that would become Cottonwood Heights, near the mouth of Big Cottonwood Canyon (Sillitoe 1996:35). The following year, the Brighton family established a homestead at the top of Big Cottonwood Canyon (Sillitoe 1996:36).

The 1860s saw the establishment of the mining and timber industries in Big and Little Cottonwood Canyons (Peterson and Speth 1980:7–8). By the 1890s, timber depletion in the canyons was dramatically evident “and overgrazing had disturbed the balance by which nature-maintained mountain watersheds in the region” (Peterson and Speth 1980:40). Water availability

and irrigation became a major issue after the first national irrigation congress, which took place in Salt Lake City in 1891 (Peterson and Speth 1980:41).

Hydroelectric power became a key source of commercial power generation. Unlike the densely packed cities in the eastern United States, western residents were often much more widely dispersed. In more arid areas like Utah, southern Idaho, and Colorado, the locations of water sources where hydroelectricity could be generated were sometimes a significant distance from towns and cities. Despite these differences, electric power was still in high demand from western consumers. This demand for electric power was stimulated by two major forces: 1) community demand for domestic and urban infrastructure and 2) demand for power to drive industrial operations (TAG Historical Research and Consulting 2016:12–14).

Lucien L. Nunn constructed the Ames Power Station in Telluride, Colorado, in 1891 to drive his mining operations (TAG Historical Research and Consulting 2016:19). The Ames plant was the first hydroelectric facility in the region to generate and transmit AC electricity over a transmission line for industrial purposes (the Oregon City Falls generator, Oregon City, Oregon, accomplished the same feat in 1889, making it the world's first for single-phase electrical transmission) (Hydro Review 2013). AC, developed by George Westinghouse, allows transmission of electricity at much higher voltages and for longer distances than the DC favored by Edison. Nunn recognized that AC was well suited to his needs, particularly the long-distance transmission of electricity from the power-generating station to a mine several miles away, and the success of the operation proved its efficacy (Hydro Review 2013).

6.7.3.1 STAIRS STATION HYDROELECTRIC PROJECT DEVELOPMENT

The success of the hydroelectric project in Telluride inspired others in the region to pursue similar ventures. One such entrepreneur was Robert M. Jones, a mining engineer who had worked throughout the Intermountain West and in 1889 was employed by the Salt Lake City Railway to install electrical equipment. His acquaintance with the Salt Lake City area no doubt led him to consider the feasibility of establishing a hydroelectric project on one of the numerous streams that emerged from the Wasatch Mountains just east of Salt Lake City. Jones scouted the canyons along the Wasatch Range, and in September 1891 located and filed an appropriation for

water from Big Cottonwood Creek, along a cascade known as the Stairs (Fiege and Ore 1988a:8-3).

After obtaining water rights, in 1893, Jones attempted to raise funds and gain a franchise from Salt Lake City for electric power. Although he received approval from the Salt Lake City Council, the mayor vetoed the action. After submitting a petition with the signatures of 126 Salt Lake City businessman, the council overrode the veto and provided him with a franchise. Jones organized the Big Cottonwood Power Company in December 1893 to develop the site (Fiege and Ore 1988a:8-3).

Power plant construction began in 1894, but Big Cottonwood Power Company ran into frequent issues with construction and water rights disputes. Financial backing by investors in the eastern states in 1895 resolved many of these issues by adding additional capital to the enterprise (Fiege and Ore 1988a:8-3).

In 1895, the Big Cottonwood Power Company sought customers to purchase their electricity. A local company, the Salt Lake and Ogden Gas and Electric Light Company (SLOGELC), in conflict with its neighbors over air pollution from its coal plant, saw the hydroelectric power produced by the Stairs Project (frequently referred to as the Stairs Station) as an alternative; however, when Big Cottonwood Power Company competed with SLOGELC for a contract to power the Salt Lake City municipal streetlights, the companies ended their previous contract (Fiege and Ore 1988a:8-3). The Stairs Project was completed in May 1896. It cost $325,000 to construct (Fiege and Ore 1988a:8-3). As noted historians Fiege and Ore (1988a:8-3) write,

> Stairs Station was an outstanding example of a small, late nineteenth-century high-head plant. Jones had chosen an ideal site for the facility. The location of the dam at the top of the Stairs and the sharp drop in elevation (350 ft. in about ¼ mile) at the site provided a high head for the turbines. Of equal importance, the short distance of the Stairs cascade necessitated only a minimum expenditure of materials and energy for the construction of a pipeline and penstock. In contrast, many high-head facilities had lengthy water delivery systems that were expensive to build and maintain (the wood flume and steel penstock for Granite Station, for instance, totalled [*sic*] about 1.75 miles in length).

Although competition resulted in a break between the Big Cottonwood Power Company and SLOGELC, the companies returned to their partnership in consolidation to thwart the outside threat posed by electrical development by Nunn in Provo and the Pioneer Electric Company in Ogden, who sought control of Salt Lake City's electric power generation. In the late 1890s and early 1900s, Nunn established hydroelectric power projects in Logan and Provo Canyons, like with Telluride, to provide electricity for mining operations. During the subsequent decades, Nunn actively expanded his operations north through construction of several dams along the Bear River in northern Utah and in southern Idaho (TAG Historical Research and Consulting 2016:19).

In addition to Nunn, several other hydroelectric facilities operated out of major communities in Utah, including Salt Lake City, Provo, and Ogden. Most of these facilities served urban centers and mining operations, although other municipally owned hydroelectric facilities also served smaller towns. These early, small-scale operations frequently suffered technical problems because of equipment failure or lightning strikes and were subject to intense competition and even sabotage from competitors (Fiege and Ore 1988b). As companies began to expand, increased capital from outside investors resulted in smaller, independent operations falling to consolidation beginning ca. 1900.

As a result of these patterns of development and consolidation, the Big Cottonwood Power Company and SLOGELC entered into an agreement in June 1896, which "stipulated that Big Cottonwood Power would supply the Salt Lake and Ogden Company with electricity for ten years" (Fiege and Ore 1988a:8-4). To complete the contract, SLOGELC constructed a 10-kilovolt transmission line from the Stairs Power Plant to a Salt Lake City substation. Power transmission began in June 1896, making it the first hydroelectric power station to supply power to Salt Lake City with AC electricity for long-distance power transmission (Fiege and Ore 1988a:8-4).

In 1897, the Big Cottonwood Power Company merged with other regional companies to form the Union Light and Power Company, which later reorganized to Utah Light and Power. Utah Light and Power controlled several hydroelectric projects, including the Stairs Project, the Granite Project (located less than two miles downstream at the mouth of Big Cottonwood Canyon), and

the Pioneer Project (in Ogden, UT), all of which provided power to Salt Lake City and the City of Ogden (Fiege and Ore 1988a:8-4−8-5). During the following years, the company would undergo several more mergers and reorganizations.

In 1904, Utah Light and Power merged with Consolidated Railway and Power to form Utah Light and Railway. In 1914, Utah Light and Railway and the Salt Lake Light and Traction Company merged to form Utah Light and Traction. In 1915, Utah Light and Traction came under the management of UP&L (Fiege and Ore 1988a:8-5).

The various consolidations, mergers, and reorganizations of the various companies that operated the Stairs Project prior to 1915 reflected a trend across the United States and Utah. Creating an integrated network of plants and distribution systems allowed hydroelectric power companies to meet varied demands and to make more efficient use of water resources (Fiege and Ore 1988b:E15). One company, UP&L, that resulted from these mergers was a subsidiary of a larger national holding company, Electric Bond and Share Company. UP&L leadership's objective was to acquire other electric companies and unify them into one integrated system rather than operate them as separate, independent entities (Fiege and Ore 1988b:E16).

With UP&L's acquisition of the predecessor companies, the Stairs Project became one of a larger network of plants in Utah and Idaho. The company continued to add more plants, particularly on the Bear River in Idaho and Utah. By comparison, these new systems dwarfed the Stairs Project, some of which involved dams hundreds of feet in length and height, impounding larger reservoirs and resulting in power plants capable of producing tens of thousands of kW in power (Fiege and Ore 1988a, 1988b).

As part of its acquisition of the Stairs Project in 1915, UP&L made several changes to the facility. In 1921, UP&L built Storm Mountain Dam, replacing the original structure. This was part of the company's overall improvement program during the 1910s and 1920s so that each power plant could function as a more reliable, efficient component in a network of hydroelectric projects. In 1913, another major alteration made to the Stairs Project involved the replacement of the original multiple generators and Pelton wheels with a single unit featuring a Francis reaction turbine (*Deseret News* 1913). Starting in the mid-twentieth century, development of the modern BCCWTP and concerns about water quality from public recreation around the original Stairs

reservoir resulted in the filling in and resultant two-thirds decrease of the Stairs reservoir/forebay pool size. Despite these changes, the major technological components of Stairs Project—the 1921 dam, flowline and penstock, and powerhouse—remain essentially intact (although the reduction of reservoir size resulted in the dam being only partially used now) and exhibit the important characteristics of an early hydroelectric project (Fiege and Ore 1988a:8-5).

The Stairs Project provided electricity for Brighton Resort after its construction in the 1940s, although the multiple ski resorts in Big Cottonwood Canyon now require additional power sources to meet their needs. In 1956, the Stairs Project underwent modernization, which included automation of some of its functions (Hydro Review 1995). UP&L merged with PacifiCorp in 1989, and PacifiCorp continues to operate the Stairs Project to the present (Hovanes 2020; Waymark 2010).

6.7.4 PREVIOUSLY CONDUCTED ARCHAEOLOGICAL INVENTORIES AND RESOURCES IN AND WITHIN THE PROJECT AREA

A file search of previously conducted archaeological inventories and recorded archaeological sites located within the Project Area using the Utah SHPO Sego online database was conducted on November 3, 2023. The file search identified five previous inventories conducted within the Project Area, two of which intersect the current Project Area (Table 6-10). Those inventories identified six historic-age (i.e., since Euro-American settlement) archaeological sites, three of which are within the Project Area (Table 6-11). Site 42SL965 is the Stairs Station Hydroelectric Power Plant, which has been recommended as eligible for the NRHP under Criteria A and C with SHPO concurrence and has been listed in the NRHP since 1988. Site 42SL967 is a historic structure (powerline) that is recommended not eligible for the NRHP. Site 42SL981 is a historic structure (Granite Dam) that has been determined to be not eligible for the NRHP.

TABLE 6-10 PREVIOUSLY CONDUCTED ARCHAEOLOGICAL INVENTORIES IN THE PROJECT AREA

PROJECT NUMBER	TITLE
U84FS1052	Big Cottonwood Canyon Sewer Line Survey
U85FS0112	Big Cottonwood Canyon Hydroelectric Project
U02FS0282	Salt Lake Campground Projects
U21TD0668[a]	A Cultural Resource Survey for Rocky Mountain Power's Brighton Line 12 Powerline Replacement Project, Salt Lake County, Utah
U22ST0573[a]	Stairs Hydroelectric Project (FERC Project No. 597) Section 106 Review for Fiscal Year 2022-2023 Proposed Improvements to Stairs Station Hydroelectric Power Plant and Granite Dam Spillway Upgrades

Note: Titles have been taken directly from the Utah SHPO's Sego database and have not been edited.
[a] Project intersects the Project Area.

TABLE 6-11 PREVIOUSLY RECORDED SITES WITHIN THE PROJECT AREA

SITE NUMBER	CLASS	TYPE	ELIGIBILITY
42SL236	Historic	Industry - Flume	Not eligible
42SL237	Historic	Ledgemere Picnic Area CCC Bridges	Eligible (Criterion C)
42SL238	Historic	Birches Picnic Area CCC Bridge	Eligible (Criteria A, C)
42SL965[a]	Historic	Industry – Stairs Station Hydroelectric Power Plant	Eligible (Criteria A, C)
42SL967[a]	Historic	Infrastructure – Powerline	Not eligible
42SL981[a]	Historic	Industry – Granite Dam	Not eligible

[a] Site/structure intersects or is within the Project Area.

Additionally, General Land Office plat maps and other historical topographical information and geographic information system (GIS) layers were reviewed for possible archaeological resources within the Project Area such as historic trails and historic districts. Based on a review of these resources, no additional resources to those noted above were identified.

6.7.5 PREVIOUSLY IDENTIFIED HISTORIC ARCHITECTURAL RESOURCES

Using the Historic Utah Buildings database, three previously documented architectural resources were identified within the Project Boundary (Table 6-12) and two additional resources were identified within the Project Area (Table 6-13, Figure 6-6). The Stairs Station Hydroelectric Plant Historic District (Stairs Historic District), lies within the Project Boundary and was

documented in 1988 as part of an NRHP nomination. The Stairs Historic District comprises eight resources; of these, four are contributing, three are non-contributing, and one has been demolished since the 1988 recording (Table 6-14, Figure 6-7) (Fiege and Ore 1988a). A second previously documented resource within the Project Boundary is the Storm Mountain Amphitheater (Property Record No. 71959), which is an eligible contributing building to the greater statewide context but not that of the Stairs Historic District. Although Big Cottonwood Creek Bridge/Maxfield Bridge D-258 (Property Record No. 58061) was previously recorded within the Project Boundary, it was demolished and replaced in 2012. Its status has not yet been updated in the Utah SHPO database, and it was originally plotted in the wrong location in that database.

TABLE 6-12 ARCHITECTURAL RESOURCES IN THE PROJECT BOUNDARY

PROPERTY RECORD NO.	NAME	YEAR BUILT	NRHP ELIGIBILITY
58061	Big Cottonwood Creek Bridge (Maxfield Bridge D-258)	1934	Demolished/Replaced with modern structure
72270	Stairs Station Hydroelectric Plant Historic District	1896	Eligible/Contributing, individually listed
71959	Storm Mountain Amphitheater	1937	Eligible/Contributing

Source: Historic Utah Buildings (2023).

TABLE 6-13 ARCHITECTURAL RESOURCES IN THE PROJECT AREA

PROPERTY RECORD NO.	NAME	YEAR BUILT	NRHP ELIGIBILITY
71143	Maxfield Lodge	1965	Non-contributing, out of period
119317	LDS Church Sawmill Site	1850	Undetermined

Source: Historic Utah Buildings (2023).

TABLE 6-14 ARCHITECTURAL RESOURCES IN THE STAIRS STATION HYDROELECTRIC POWER PLANT HISTORIC DISTRICT AS IDENTIFIED IN 1988

DISTRICT BUILDING NUMBER	NAME	YEAR BUILT	NRHP DISTRICT ELIGIBILITY
1	Powerhouse	1896	Eligible/Contributing
2	Switchyard (modern)	ca. 1980	Non-contributing
3	Storm Mountain Dam	1921	Eligible/Contributing
4	Conduit	1921	Eligible/Contributing
5	Penstock	1896	Eligible/Contributing
6	Standpipe	1939	Non-contributing
7	Oil shed (collapsed)	ca. 1900	Demolished
8	Bridge over Big Cottonwood Creek (modern)	ca. 1980	Non-contributing

Source: Fiege and Ore (1988a).

Note: All resources in this table are within the Stairs Project Boundary.

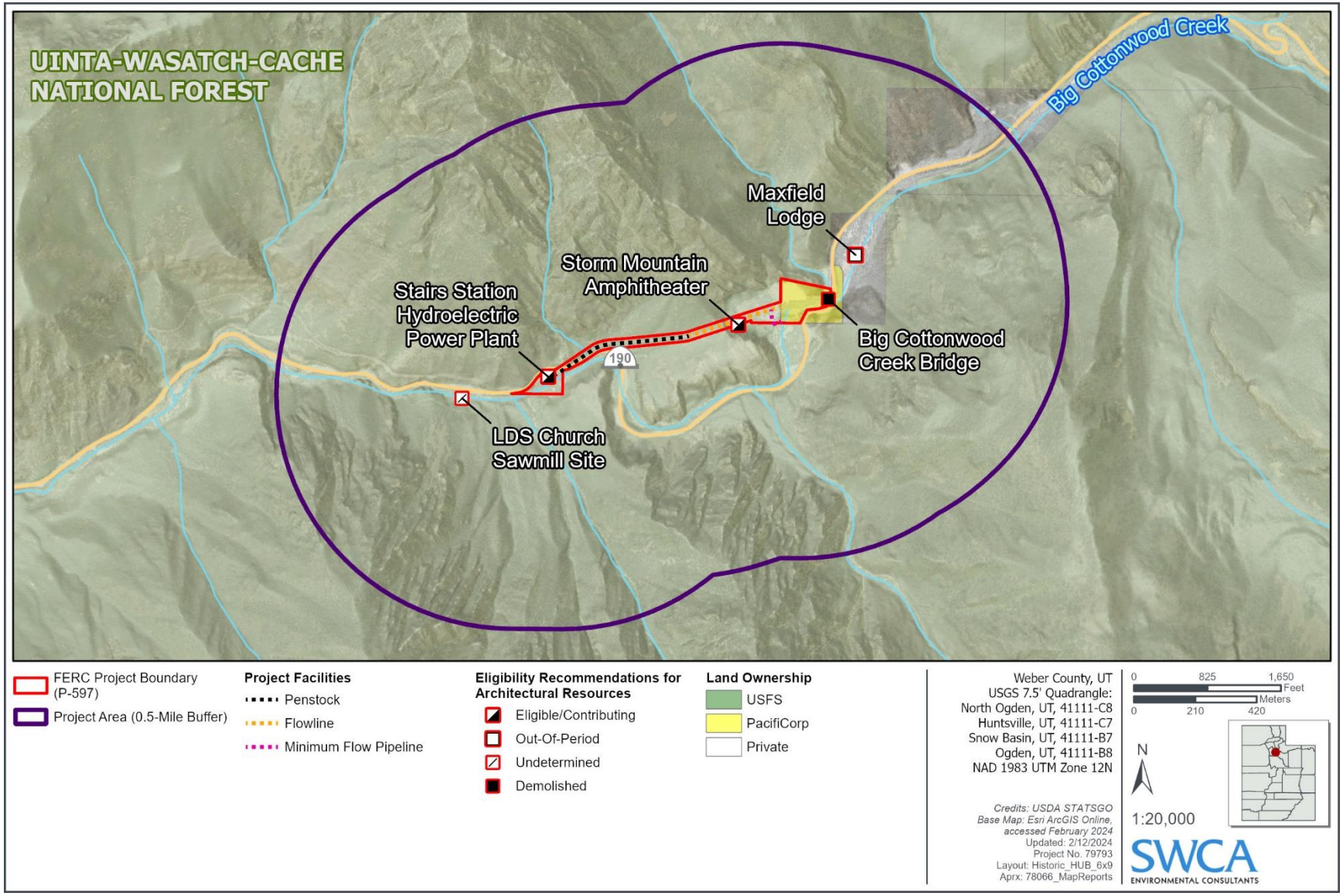

FIGURE 6-6 ELIGIBLE HISTORIC ARCHITECTURAL RESOURCES IN PROJECT AREA (HISTORIC UTAH BUILDINGS DATABASE)

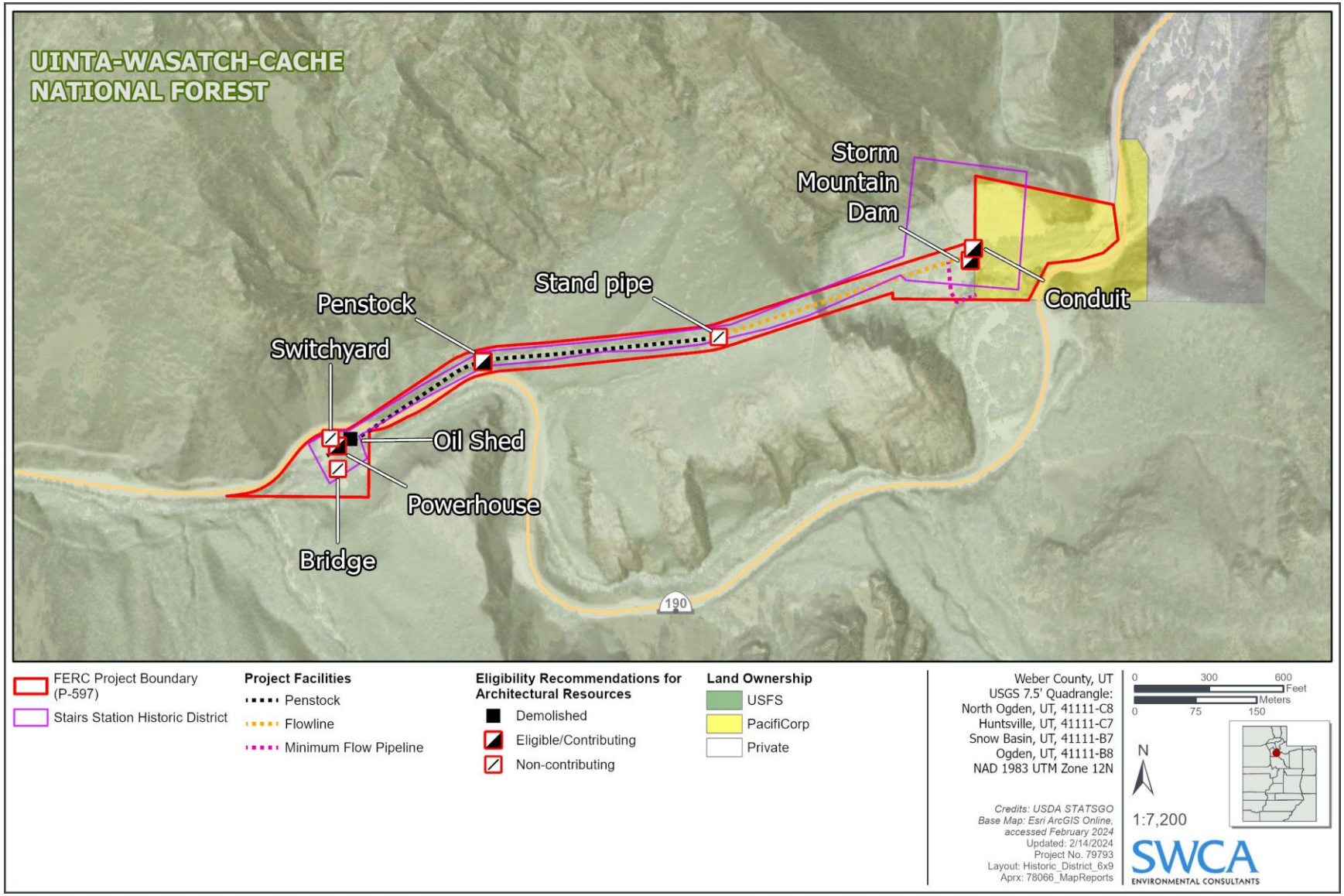

FIGURE 6-7 ELIGIBLE HISTORIC ARCHITECTURAL RESOURCES IN PROJECT AREA (STAIRS HISTORIC DISTRICT 1988 NRHP NOMINATION)

6.7.6 TRIBAL RESOURCES IN THE PROJECT AREA

Under Section 106 of the National Historic Preservation Act, FERC must seek out any federally recognized Tribe that can demonstrate traditional cultural or religious connection to land under its jurisdiction and involve them in the conduit exemption and subsequent license surrender process.

The Project boundary does not encompass any federally recognized Tribal reservation lands; however, some federally recognized Tribes within the state of Utah and surrounding states may have an interest in the Project.

- Ute Indian Tribe of the Uintah and Ouray Reservation, Utah
- Confederated Tribes of the Goshute Reservation, Nevada and Utah
- Skull Valley Band of Goshute Indians of Utah
- Paiute Indian Tribe of Utah (Cedar Band of Paiutes, Kanosh Band of Paiutes, Koosharem Band of Paiutes, Indian Peaks Band of Paiutes, and Shivwits Band of Paiutes)
- Northwestern Band of the Shoshone Nation
- Shoshone-Bannock Tribes of the Fort Hall Reservation

6.7.7 IDENTIFICATION OF RESOURCES

Prior to Euro-American settlement in modern-day Utah, the Salt Lake Valley acted as a neutral territory between the Utes in Utah Valley, the Goshutes to the west, and the Shoshones to the north (Duncan 2003:187). The Project Area in Big Cottonwood Canyon is within the traditional Ute and Eastern Shoshone Tribal territory; however, the Utes, Shoshone, Goshutes, and Paiutes are all federally recognized Tribes that may potentially have a traditional cultural or religious connection to the lands in the Project Area or vicinity of the Project.

6.7.7.1 UTE TRIBES

Traditionally, the Utes were a nomadic mountain people, organized into local groups (bands), whose territory extended from modern-day southwestern Wyoming; across most of Utah and Colorado, eastern Nevada, the southwest half of Kansas; and into northern Arizona, New Mexico, Texas, and the Oklahoma panhandle. They were foragers who followed a seasonal

round within their traditional lands and lived in brush wickiups or tipis in the Plains Indian style (Duncan 2003:169; Goff 2023). During the winter they typically moved to villages in the deserts and valleys and to the foothills and mountains during the spring and summer. They gathered for communal hunts in the fall, including for buffalo (Duncan 2003:169–170).

The Spanish have the earliest written reference to the Ute people in reports from the 1626 Oñate expedition. At the time, the Spaniards noted at least 10 bands of Utes living in modern-day Utah and Colorado (Duncan 2003:175–176). The Spanish imported domesticated horses in the 1600s, which significantly altered many Indigenous groups' lifeways. Not all Ute bands kept horses, and those who did, such as the northern bands, acquired them in the late seventeenth or early eighteenth century; however, the bands who did adopt horses learned to hunt more efficiently, allowing for further travel and the ability to take part in buffalo hunts on the eastern and southern plains. This increased travel, however, put them into contact with other Plains Tribes, such as the Apache and Comanche, and resulted in a greater threat to Spanish settlements (Duncan 2003:180–182).

In 1776, the first Europeans expedition, led by Spanish friars Francisco Atanasio Domínguez and Silvestre Vélez de Escalante, visited what is today Utah (May 1987:24). They encountered Indigenous people, likely Uintah Utes, who foraged for wild plants and game, cultivated squash and corn, and made ceramics (Daughters of the Utah Pioneers of Uintah County [DUPUC] 1947; Native Ministries International 2022a; Warner 1995:70–73). The expedition revealed hostilities between the Ute and Shoshone Tribes, both of which occupied the Uinta Basin (Barton 1998:19).

The earliest sustained Euro-American presence in the Uinta Basin region is attributed to fur trappers and traders. Establishment of numerous trading posts and rendezvous locales across the entire Great Basin facilitated trading or sale of pelts for money or goods. General William Ashley traveled into Uinta Valley (later named Ashley Valley by Euro-American trappers/settlers)[2] in 1825 with Andrew Henry, founder of the Rocky Mountain Fur Company, and Jim Bridger, a well-known trapper (DUPUC 1947). Ashley noted that the Uinta-at Utes (later called Tavaputs) living in the valley had Spanish horses, British guns, and wore pearl and

[2] At the time the Europeans entered this area, Ashley Valley was referred to as Uinta Valley by the band of Utes who were occupying it at the time. Uinta Valley (now known as Ashley Valley) is located within the greater Uintah Basin.

shell ornaments, demonstrating the extent of their trade networks (Burton 1996:5, 58; Duncan 2003:191). The first Uintah County trading post established at Whiterocks in 1828 was purchased in 1832 by French-American trader Antoine Robidoux (Burton 1996:6).

Members of the LDS Church, led by Brigham Young, arrived in Salt Lake Valley in 1847, outside the Ute's active territory (Duncan 2003:187); however, within a decade the Latter-day Saints established 16 cities and towns within Tribal territories, and in six years they outnumbered the local Ute population (Cuch 2003:21; Duncan 2003:188). In response to the depletion of their lands' resources, the Utes began taking Latter-day Saint livestock, such as at Fort Utah in 1850 (Duncan 2003:187). The settlers responded by raising militias and attacking the Utes, killing their men, and capturing women and children (O'Neil and Mackay 1979:5). These conflicts escalated into the Walker War, led by Ute leader Wakara from 1853 to 1854, with most clashes taking place in central Utah territory (Burton 1996:23; Duncan 2003:188; O'Neil and MacKay 1979:5). In May 1854, Brigham Young and Wakara met and arranged a peace treaty; Wakara died less than one year later, and his brother Arapeen succeeded him as a leader (Burton 1996:23).

In 1861, Young sent an expeditionary group to the Uinta Basin to assess the region's potential for settlement (Burton 1996:82–83). The 1861 expedition confirmed the Uinta Basin was a suitable place to relocate the Ute Indians, and at Young's suggestion President Abraham Lincoln created the Uintah Valley Indian Reservation that same year (Barton 1998:49; Spangler 1995:700).

In 1863, violence erupted as some Utes, led by Black Hawk, initiated raids on southern Utah Euro-American settlements. The number of participants in the Black Hawk War increased after Black Hawk gathered recruits from neighboring bands of Utes in Colorado and eastern Utah and some Navajos after smallpox and starvation took many Ute people's lives in the winter of 1864 to 1865 (O'Neil and MacKay 1979:7). Several Latter-day Saint settlements were temporarily abandoned as people moved to centralized forts for protection (Burton 1996:24; Duncan 2003:190). In June 1865, Young helped negotiate the Spanish Fork Treaty with a council of Ute leaders, resulting in the Utes moving to the reservation in Uinta Basin in exchange for use of their traditional lands (Larson 1974:364). The Utes moved believing the treaty was a completed

negotiation; however, Congress later refused to ratify the treaty, and instead simply ordered the Utes to move to the reservation without compensation. This increased the number of Utes fighting alongside Black Hawk, and clashes between the Utes and Latter-day Saints continued until 1868, resulting in the deaths of 50 Latter-day Saints and more than 300 Utes. Eventually starvation, lack of supplies, and the overwhelming militia numbers ended the war. Tabby-ko-Kwanah led the remaining Utes in Utah as they relocated to the reservation in 1869 (Burton 1996:24–25; DUPUC 1947:186; O'Neil and MacKay 1979:7–8). These included peoples from bands that included the Uinta-ats (later called Tavaputs), Pahvants, Tumpanawaches, San Pitches, and some Cumumbas and Sheberetchs of Utah, who became known collectively as the Uintah Utes (Burton 1996:18–19).

During the latter half of the nineteenth century, the Colorado Yamparka and Parianuc Ute Bands, following adoption of the Ute Treaty of 1868, moved to the White River Reservation in White River, Colorado, and the Taviwach Ute Band moved to the Uncompahgre Reservation in Los Pinos, Colorado (Burton 1996:27; Lewis 1994; O'Neil and MacKay 1979:11). The White River Indian Agent, Nathan Meeker, had no sympathy for the White River Utes and his deliberate antagonism and subsequent request for federal troops led to an ambush and Meeker's death in 1879, known as the Meeker Incident (Burton 1996:27; O'Neil 1971). The Meeker Incident resulted in removal of the Utes from Colorado and the former reservation land was opened to mining. In 1881, the White River Utes were sent to the Uintah Reservation (without the permission of the Uintah Utes). Concurrently, the Uncompahgre Utes were forcibly relocated to the Uinta Basin at the Ouray Reservation, just south of the Uintah Reservation, covering the White, Green, and Duchesne River valleys (Duncan 2003:195–196).

By 1905, passage of the Indian General Allotment Act, also known as the Dawes Severalty Act, opened much of the Uintah Reservation to white settlement (May 1987:106–109; Poll et al. 1989:367–368). The remaining reservation lands were checkerboarded by being split into smaller, separate parcels, and the two reservations were combined and renamed the Uintah and Ouray Reservation. All the Ute Band members were renamed the Uintah-Ouray Ute Tribe (Duncan 2003:205).

In 1937, the Tribe wrote a constitution, established a Tribal Council, and all bands were enrolled in the Ute Indian Tribe of the Uintah and Ouray Reservation (Duncan 2003:209). That year, the Tribe also established the Uintah and Ouray Ute Business Committee under the Indian Reorganization Act (Duncan 2003:209). In 1948, legislation extended the reservation boundaries, returning lands previously designated as the Uncompahgre Grazing Reserve to the Tribe. An additional 3 million acres were returned to the Tribes in 1986 (Duncan 2003:211; Goff 2023; Lewis 1994). In 2020, the Tribes had more than 3,000 enrolled members, over half of whom were living on what is the second-largest reservation in the United States at 4.5 million acres. The Tribes also own multiple businesses, including cattle ranching and oil and natural gas extraction (Utah Division of Indian Affairs 2023a; Ute Indian Tribe Political Action Committee 2020). The Ute Indian Tribe of the Uintah and Ouray Reservation is a federally recognized Tribe.

6.7.7.2 GOSHUTE TRIBES

There are two bands of Goshute Tribes: the Confederated Tribes of the Goshute Reservation, Nevada and Utah, and the Skull Valley Band of Goshute Indians of Utah. The Goshutes are associated with the Western Shoshones whose traditional lands encompassed Utah's West Desert south of Great Salt Lake, extending from the Oquirrh Mountains on the east to the Steptoe Mountains in eastern Nevada. Within Utah, Skull Valley and Tooele Valley were two areas of greatest Tribal population (AAA Native Arts 2023). The Goshute people adapted to the desert environment and occupied some of the most arid land in North America (Utah American Indian Digital Archive [UAIDA] 2008a). They were highly efficient foragers, living in mobile family groups and using and maintaining the resources, including more than 100 species of wild plants; large game such as pronghorn, bear, deer, bighorn sheep, and elk; as well as small mammals, birds, reptiles, and insects such as crickets and grasshoppers (AAA Native Arts 2023). Winter camps brought larger groups together, as did periodic communal hunts (AAA Native Arts 2023; UAIDA 2008a).

During Spanish colonization of the Southwest, the slave trade was a profitable business, and Goshutes were frequently captured and sold, by both the Spanish and members of other local Tribes. Although Euro-American trappers and emigrants encountered the Goshutes occasionally prior to the 1850s, their contact remained sparse until the Latter-day Saints settled in the Salt

Lake Valley and began expanding. By 1854 Latter-day Saint settlements around Utah Lake forced the Goshute from their lands; the Goshute responded by raiding livestock from the new settlements. The LDS Church established a farm southwest of Skull Valley at Deep Creek, near the Utah-Nevada border and the town of Ibapah, to act as a reservation for members of the Tribe (UAIDA 2008a). The Pony Express was established along a route that ran through Goshute territory, and the federal government established a treaty with the Goshutes in 1863 that allowed for peaceful travel through their lands without ceding their rights to it. The Goshutes also agreed to allow military posts, stage lines, telegraph lines, and railways to be built, and for mining, milling, ranching, and logging to take place on their lands in return for annual payments (AAA Native Arts 2023; UAIDA 2008a). This treaty, negotiated with Goshute leaders Tints-pa-gin and Harry-nap, did specify an eventual move to reservations, but did not establish a timeline or where the reservation would be located (AAA Native Arts 2023; Crum 1987).

Starting in the 1860s, the government tried to convince the Goshutes to move to the Ute reservation in the Uinta Basin; the Shoshone Reservation at Fort Hall, Idaho; and later the Paiutes' Kaibab Reservation in northwestern Arizona but were unsuccessful. In 1883, Latter-day Saints helped Tints-pa-gin and another Skull Valley Goshute man named Shiprus file homestead patents on 320 acres along Hickman Creek in Rush Valley; however, a Goshute reservation was not established until the early twentieth century (Crum 1987).

The Skull Creek Reservation was established in 1912 to house the Skull Valley band of Goshutes, it expanded in 1917 to 17,920 acres (Utah Division of Indian Affairs 2023b). The Bureau of Indian Affairs ceased support to the reservation in 1921, but the Skull Valley Goshutes remained, and in 1935 funding returned following passage of the Indian Reorganization Act. Further attempts to move the Skull Valley Goshute to the larger Deep Creek reservation also failed (Crum 1987). In 1914, the Deep Creek Reservation formed south of Ibapah, Utah, and southwest of the Skull Creek Reservation. Members of the Goshute, Paiute, and Bannock Tribes share the 113,000-acre Deep Creek Reservation, which straddles the Nevada-Utah state border (AAA Native Arts 2023; Native Ministries International 2022b). The original reservation boundaries expanded in 1939 with the purchase of three local livestock ranches (AAA Native Arts 2023).

The federal government promoted agriculture as a means for the Goshute bands to be self-sustaining, as it did with all Indigenous people in the twentieth century; however, geographic and environmental limitations prevented this from becoming a reality on all reservations (Utah Division of Indian Affairs 2023b). Today, the Confederated Tribes of the Goshute Reservation consists of approximately 400 members and relies on profits from permits to hunt an elk herd they manage (Utah Division of Indian Affairs 2019). The Skull Valley Band includes 130 members and they own a rocket motor testing facility leased to Hercules, Inc. (Utah Division of Indian Affairs 2023b). Both the Skull Valley Band of Goshute Indians of Utah and the Confederated Tribes of the Goshute Reservation are federally recognized Tribes.

6.7.7.3 SHOSHONE TRIBES

Historically, Shoshoni-speaking bands lived in the part of the northern Great Basin that includes several river basins: the upper Snake and Salmon Rivers in Idaho, and the Green and Bear Rivers in Utah and Wyoming. With the introduction of horses in the early 1700s, bands of Shoshone began traveling over large areas beyond their ancestral homelands. Within 50 years this expansion was halted in the Plains area by other groups who had also acquired horses and guns from European settlers. The Shoshone returned to their earlier territories within the western river valleys: the Lemhi Shoshones and Flathead Salish along the Salmon River, the Northern Shoshones and Bannocks along the Snake River, and the Eastern Shoshones along the Green and Bear Rivers. Throughout the nineteenth century these groups continued to participate in annual bison hunts to the east (Jackson Hole Historical Society 2022; Murphy and Murphy 1986; Steward 1937). Many of these bands later organized into federally recognized Tribes, including the Northwest Band of Shoshone Nation and the Shoshone-Bannock Tribes of the Fort Hall Reservation.

The Shoshone rotated their villages seasonally to gather resources over a vast area, including Wyoming, northern Utah and into the Salt Lake Valley, southern Idaho, and eastern Nevada. In the spring groups would fish for salmon below Shoshone Falls, then travel west to Camas Prairie to gather during the summer months. In the fall they traveled to Wyoming for annual bison hunts and through Utah and Nevada to gather pine nuts and would then typically return to winter camps in the Snake River bottoms (Murphy and Murphy 1986; Shoshone-Bannock Tribes 2021; Steward 1937). They continued this into the nineteenth century. Steward (1937) reported on one

band that generally wintered near Fort Hall. This band comprised two integrated but culturally and linguistically distinct groups: the Bannocks, a Northern Paiute group that moved into the area in the seventeenth century, and the Northern Shoshones (Murphy and Murphy 1986; Shoshone-Bannock Tribes 2021; Steward 1937).

Identification of groups was fluid based on their residential location and social identity (Murphy and Murphy 1986:286–287; Steward 1997:172). The people known today as the Northwestern Band of Shoshone traveled seasonally and largely on foot. They were known as "So-so-goi," which means "those who travel on foot" (Northwestern Band of the Shoshone Nation [NWB Shoshone] 2024). The Northwestern Shoshone wintered along the Bear River in Cache Valle and were led by Bear Hunter, whom members of the LDS Church described as a war chief (NWB Shoshone 2024).

By the 1840s, bison herds west of the Continental Divide had been exterminated (Murphy and Murphy 1986). Emigration along the Oregon Trail brought more Euro-American settlers through the region, and settlement by members of the LDS Church began in the 1860s (Murphy and Murphy 1986). By the late 1860s, it is estimated that over 300,000 people traveled along the Oregon and Overland Trails. This influx of settlers disrupted and, in some cases, depleted the resource used by the Shoshone-Bannock peoples. The last great bison hunt by the Northern Shoshones and Bannocks took place in 1864 (Shoshone-Bannock Tribes 2021). The traditional cultural practices of the Shoshone-Bannock clashed with those of the new settlers, giving rise to increased tensions.

In 1860, tensions between Indigenous people and settlers increased with the LDS Church establishment of Franklin, the first permanent Euro-American settlement in Idaho (Schwantes 1991). On January 29, 1863, the U.S. Army under the command of Colonel Patrick Connor attacked the Shoshone winter village of Boa Ogoi (Wuda Ogwa), near present day Preston, Idaho. The 300 soldiers traveled north from Camp Douglas in Salt Lake City and instigated a dawn attack that killed over 250 Shoshones, primarily women and children. Colonel Connor's troops looted weapons, took prisoners, burned lodges and the dead, and took approximately 175 ponies (Reid et al. 2017). Most surviving children were taken and adopted by members of the LDS Church in Cache Valley (Miller 2008). This event, the Bear River Massacre, is one of the

deadliest massacres perpetrated by the U.S. military in U.S. history. It resulted in a significant shift in relations between the two groups, in that settlers no longer feared retaliation as the Indigenous peoples were decimated.

In 1863 and 1868, the Tribes entered into peace treaties with the U.S. government leading to establishment of the Fort Hall Reservation in 1867. Although the peace treaties had established reservation land for the Shoshone-Bannock, settlers and increased land development soon began encroaching onto Shoshone-Bannock reservation lands in the late nineteenth century. A series of land cessions and renegotiation of reservation boundaries resulted in a dramatic decrease in reservation size by 1900 (Murphy and Murphy 1986:303). Despite the reservation size decrease, effects of altered subsistence strategies, and government neglect, the Shoshone continued to adapt (Heaton 2005:88–89). Other Shoshone groups were relocated to the Fort Hall Reservation as well, after being forced off their original reservation in both 1905 and 1907 (American Indian Relief Council 2022; Murphy and Murphy 1986). The Northwestern Band of the Shoshone Nation received federal recognition in 1987 (Utah Division of Indian Affairs 2023c). In 2018, the Tribe purchased 550 acres of land associated with the Bear River massacre with plans to build a cultural interpretive center at the site.

By the 1860s, the Eastern Shoshone were primarily living in the Wind River Valley in Wyoming, spending the summer months in the Fort Bridger area. Chief Washakie became a prominent leader in the 1850s, and in 1852, he was the sole Shoshone representative to negotiate the Latter-day Saint settlement with Brigham Young in Salt Lake City (Jackson Hole Historical Society 2022; Shimkin 1986). In 1863, Chief Washakie negotiated the first treaty of Fort Bridger, which set rough boundaries for a Shoshone Reservation that included parts of Utah, Idaho, Montana, Wyoming, and Colorado and gave federal recognition to the Tribe; however, the second treaty of Fort Bridger in 1868 limited the boundaries to an area in west-central Wyoming but afforded the Tribe legal recognition (Eastern Shoshone 2022). In 1877, Chief Washakie and other Shoshone leaders agreed to allow the Arapaho Tribe (another Plains Tribe) to move onto the Wind River Reservation as well (Jackson Hole Historical Society 2022). The Arapaho were given fertile, irrigable lands on the east side of the reservation by the government (Shimkin 1986). In 1939, lands north of the Big Wind River were restored to the Shoshone, along with a monetary settlement from the federal government after the Tribe won a legal suit,

which the Shoshone Tribal council put toward economic development of the Tribe (Shimkin 1986). Although both Tribes still live on the Wind River Reservation, they operate as two separate Tribal governments. The Northwestern Band of the Shoshone Nation and the Shoshone-Bannock Tribe of the Fort Hall Reservation are federally recognized Tribes.

6.7.7.4 PAIUTE TRIBES

The Southern Paiutes' traditional lands extend from southern California across southern Nevada, south-central Utah, and northern Arizona (UAIDA 2008b). They were divided into regional bands, including the Cedar, Indian Peaks, Kanosh, Koosharem, and Shivwits Bands, although independent groups of three to five families typically traveled together (Utah Division of Indian Affairs 2023d). They were mobile foragers whose population centers were located along the Virgin and Muddy Rivers, although some bands adapted to the arid portions of their territory by accessing natural springs. They also raised crops such as corn, squash, melons, and sunflowers along the Virgin, Santa Clara, and Muddy Rivers, which provided basic irrigation (Holt 1994). Fall gatherings were an opportunity for individual groups to reconnect, perform dances, and participate in communal activities such as the pine nut harvest or fish spawning at Fish Lake (Holt 1994; UAIDA 2008b).

The Paiutes did not adopt domesticated horses once they became available in North America, and as a result were frequently targeted by raids that supplied the slave trade established during the Spanish colonization of the American Southwest. The Spanish Trail, a trade route that connected New Mexico to the Pacific Ocean, was closely tied to the slave trade (UAIDA 2008b).

Although the Paiute Bands in Utah met explorers, trappers, and traders during the early nineteenth century, it was not until the Latter-day Saints began to expand their settlements south from the Salt Lake Valley in 1851 that the Paiutes began to be displaced (UAIDA 2008b). The Paiutes allied themselves with the Latter-day Saints early on, as protection against slave raids by Utes, Navajos, and Mexicans, but the settlers passed infectious diseases to the Paiutes and their livestock consumed both native plants and crops on which the Paiutes relied (Holt 1994; UAIDA 2008b). By 1859, 11 Latter-day Saint communities claimed rights to Paiute land (UAIDA 2008b).

In 1857, the Paiutes were named as participants in the Mountain Meadows Massacre near Cedar City, Utah, where more than 100 emigrants traveling by wagon train to California were ambushed by a small group of people dressed as Paiutes, although the most recent evidence does not support that claim. The emigrants fought under siege for 5 days before they were approached by the Latter-day Saint militia under a flag of truce, then led away and massacred (UAIDA 2008b). The massacre occurred during a period of extreme political tension between the Latter-day Saints and the U.S. government (King 2012). Although accounts of the extent of Paiute participation and possible incitement by militia members have varied, Paiute oral tradition strongly maintains that the Paiute people were not involved (UAIDA 2008b).

The Utah Paiute Bands were co-signers to the 1865 Spanish Fork Treaty that established the Uintah Valley Reservation, but that treaty was not ratified by Congress, and the Paiutes were not moved onto the reservation with the Utah Ute Bands in 1868 (Burton 1996; Holt 1994; Shivwits Band of Paiutes 2023). Separate reservations were established for the Shivwits Band in 1891, the Indian Peaks Band in 1915, the Koosharem Band in 1928, and the Kanosh Band in 1929; the Cedar City Band was not granted a reservation at that time and lived on lands owned by the LDS Church (Holt 1994; Shivwits Band of Paiutes 2023).

In 1954, the federal government terminated each of the Paiute Bands at the recommendation of the hostile Senate representative from Utah (Holt 1994). They were the only federally recognized Utah Tribe that was terminated under the Termination Act (UAIDA 2008b). As a result, the Paiute Bands lost federal tax protection, health and education benefits, agricultural assistance, and 15,000 acres of former reservation lands (Holt 1994; UAIDA 2008b; Utah Division of Indian Affairs 2023d). Between 1954 and 1980 an estimated half of all Tribal members died largely due to the lack of basic health care resources (UAIDA 2008b).

In 1980, the five previous Utah Paiute Bands were restored to their former status as separate federally recognized Tribes. In 1981, the five restored bands adopted a joint-governance constitution, delegating some authority to the Paiute Indian Tribe of Utah and a joint Tribal Council with one representative from each band, while maintaining individual band councils (Shivwits Band of Paiutes 2023). In 1984, 4,470 acres of Bureau of Land Management–administered lands were granted to the bands, far less than their original reservations lands; this

acreage is divided into 10 separate land parcels that are divided into individual reservations for the Cedar and Indian Peaks Bands in Iron County, the Kanosh Band in Millard County, the Koosharem Band in Sevier County, and the Shivwits Band in Washington County, as well as one small parcel in Iron County designated for the Paiute Indian Tribe as a whole. Tribal membership across the five bands is currently over 900 individuals (Paiute Indian Tribe of Utah 2023). The Paiute Indian Tribe of Utah, comprising the Cedar Band of Paiute Indians, the Indian Peaks Band of Paiute Indians, the Kanosh Band of Paiute Indians, the Koosharem Band of Paiute Indians, and the Shivwits Band of Paiute Indians, is a federally recognized Tribe.

6.7.8 POTENTIAL RESOURCES

Given the history of these Tribes in Utah, it is possible that the Ute Indian Tribe of the Uintah and Ouray Reservation, the Confederated Tribes of the Goshute Reservation, the Skull Valley Band of Goshute Indians, the Northwestern Band of the Shoshone Nation, the Shoshone-Bannock Tribes, the Shoshone Tribes of the Wind River Reservation, the Cedar Band of Paiute Indians, the Indian Peaks Band of Paiute Indians, the Kanosh Band of Paiute Indians, the Koosharem Band of Paiute Indians, and the Shivwits Band of Paiute Indians may hold cultural or religious significance to land or resources within the vicinity of the Project.

6.7.9 ENVIRONMENTAL EFFECTS

There are 15 known historic properties within the Project Area (two archaeological sites, 12 buildings and structures, and one historic district [PacifiCorp's Stairs Historic District]); however, based on current known and future planned activities, there would be no adverse effect associated with the conduit exemption and corresponding license surrender process. No environmental effects on cultural and historic resources are expected under the Proposed Action within the Project Area or the Project Vicinity; however, as a responsible steward of the Stairs Project and its historic features, PacifiCorp proposes to develop and implement a historic properties management plan to maintain and protect the historic properties and sites within the Project Boundary.

6.8 RECREATIONAL RESOURCES

This section describes the recreation facilities and opportunities within the Project Boundary, which encompasses 13.3 acres, and the Project Area. The existing Project Boundary is located

partially on USFS-administered lands and partially on lands owned by PacifiCorp (approximately 8.7 acres of federal land and 4.6 acres of land owned by PacifiCorp) (FERC 1999). For regional context, recreational opportunities accessible along Big Cottonwood Canyon Scenic Byway and recreation use and visitation in the UWCNF are also briefly described.

6.8.1 RECREATION OPPORTUNITIES AT THE PROJECT

In the prior FERC relicensing proceeding, PacifiCorp completed a recreational resources technical report (PacifiCorp 1998) that evaluated additional recreational uses and opportunities at the Project, including an opportunities and constraints analysis. The study analyzed the following Project features: the intake structure, flowline and penstock, powerhouse, tailrace, and bypass reach of Big Cottonwood Creek. Suitability assessment results showed that although seven recreation opportunities were potentially feasible in the study area, none were found to be suitable.

Development of day use, fishing, or Americans with Disabilities Act (ADA) access at the intake area was found to be unsuitable due to safety concerns and conflicts with Project operations and maintenance. The powerhouse area was found to have no suitability for expansion of existing facilities due to inadequate space for parking and restricted visibility for safe public ingress and egress onto Highway 152 from the site. The bypass reach was found to be unsuitable for fishing and trail access due to the extremely steep, narrow, and rocky nature of the stream corridor and adjacent canyon,[3] as well as its proximity to Big Cottonwood Canyon Road, adjacent avalanche paths and scree slopes, and the existing USFS Storm Mountain Picnic Area, which occupies the only part of the canyon in the Project Area wide enough for such a development. The USFS's Storm Mountain Picnic Area already provides fishing access (including ADA accessibility), and the report concluded that, even if feasible, additional development would disperse the use rather than concentrating it in Storm Mountain Picnic Area where there is safe, accessible parking, additional day use opportunities, and restrooms to support recreation use in an area where water quality and the prevention of stream degradation are paramount to the water supply of Salt Lake City.

[3] The bypass reach is the location of the site and Project's namesake: the Stairs Cascade.

The study concluded that a wide variety of recreational opportunities exist in the surrounding UWCNF, specifically within Big Cottonwood Canyon, and that the narrow and bending nature of the canyon within the Project Area restricts additional development. Therefore, no recreational measures or facilities were considered feasible for the Project, and none were either recommended or required under the current license for the Stairs Project (FERC 1999; PacifiCorp 1998).

Although not required by the current license, PacifiCorp has developed and maintains a group picnic area (Stairs Powerhouse Picnic Area) just to the south of and across the creek from the Stairs Project powerhouse, accessible via a pedestrian bridge that crosses the creek. This land formerly held the Stairs powerhouse workers' cottages and gardens, is partially within the Project Boundary, and is managed through a special use permit (SUP) from the USFS (PacifiCorp 1998). The Stairs Powerhouse Picnic Area is ADA accessible, can accommodate up to 150 people, and is available to the public through reservation only, from May 1 through September 30 (PacifiCorp 1998). This picnic area offers 11 picnic tables; two large grills; a fire pit; horseshoe pits; a volleyball court; a restroom; a large, treed lawn area; and limited parking for six to 10 vehicles, although there is also a park and ride lot located less than two miles away that facilitates carpooling to the site (PacifiCorp 1998).

Additionally, there is one USFS-owned and managed recreational facility that intersects the Project Boundary (the aforementioned Storm Mountain Picnic Area) and is located immediately downstream of the intake diversion dam (PacifiCorp 1998). This picnic area also contains the Storm Mountain Amphitheater, a 200-person capacity outdoor venue that must be reserved for use and is also considered a historic archaeological resource (see Section 6.7.5) (USFS 2023a). The USFS's Storm Mountain Picnic Area is intertwined with PacifiCorp's Storm Mountain Dam and Stairs Project intake, because portions of the USFS recreation site were inadvertently constructed on PacifiCorp property around the dam and intake structure; inadvertently constructed features include streamside observation decks and platforms, a picnic site, sidewalks, a trail accessing the upper rock climbing and upstream fishing areas around the Project forebay, and a path to the Storm Mountain Amphitheater, which extends west along the Project flowline and is partially within and adjacent to the Project Boundary. In fact, several Storm Mountain Picnic Area paved paths were constructed over the Stairs Project minimum flow pipeline.

Dispersed recreation opportunities such as fishing, rock climbing, photography, and nature-watching may also be found at the Project (FERC 1999). There are a number of traditional and sport climbing routes near the flowline and intake with access routes intersecting the Project Boundary (Mountain Project 2023). Additionally, there are fishing opportunities in the reach of Big Cottonwood Creek upstream of the forebay created by the Storm Mountain Dam; the forebay itself is also used for dispersed fishing (PacifiCorp 1998). See Section 6.4.1 for information about Big Cottonwood Creek resident fish species. Given the sizable, flat area able to accommodate multiple large vehicles and crews adjacent to the Storm Mountain Dam and forebay, Salt Lake County Search and Rescue and the USFS fire response teams have used the PacifiCorp-owned portion of the site for both practice drills and to stage fire response and a heli-tac firefighting water supply site.

6.8.2 RECREATION OPPORTUNITIES IN THE PROJECT AREA

There are various additional non-Project recreational opportunities available in the Project Area, which—excluding PacifiCorp's Stairs Powerhouse Picnic Area—are managed by the USFS and located within the surrounding UWCNF. The Stairs Gulch Trail, a 1.6-mile trail in the Stairs Gulch, begins just to the south of the Project Boundary and is largely contained within the Project Area (All Trails 2023). Other trails in the Project Area consist of the 1.2-mile Mule Hollow Mine Trail located on steep terrain in Mule Hollow, just east of PacifiCorp's private land adjacent to the north side of the Storm Mountain Dam and forebay; the Aqueduct Trail, which parallels Big Cottonwood Creek for 0.9 mile; and a portion of the 0.7-mile Granite Flume Trail (All Trails 2023). The Granite Flume Trail follows the original alignment of the historic Granite Flume that has since been replaced with a steel flowline and mostly rerouted under Big Cottonwood Canyon Road. The new flowline extends from immediately downstream of the Stairs Project tailrace downcanyon to the Granite Project, powerhouse (PacifiCorp 2011).

In addition to PacifiCorp's Stairs Project Powerhouse Picnic Area and the USFS Storm Mountain Picnic Area, there are two additional picnic areas in the Project Area: Ledgemere Picnic Area and Birches Picnic Area (USFS 2023b); both are located along the south side of both the creek and highway. Pullouts for access, including picnic area and fishing access to Big Cottonwood Creek also exist in the Project Area. There are dozens of climbing routes available in the Project Area, including opportunities for traditional climbing, sport climbing, ice climbing,

and bouldering (Mountain Project 2023). Figure 6-8 shows recreation opportunities in the Project Area.

Although only partially located within the Project Area, the surrounding Big Cottonwood Canyon provides regionally significant opportunities for recreation. Recreational opportunities in Big Cottonwood Canyon outside the Project Area include trails for hiking, backpacking, trail-running, mountain and road biking, and horseback riding; numerous rock climbing and ice climbing routes; backcountry skiing and snowboarding, picnic grounds; and campgrounds (All Trails 2023; Mountain Project 2023; USFS 2023b). Additionally, Brighton Resort and Solitude Mountain Resort are located in Big Cottonwood Canyon. These ski resorts offer both downhill and cross-country skiing in the winter and hiking and mountain biking opportunities in the summer (Powder 2023; Solitude Mountain Resort 2024). Big Cottonwood Canyon is a popular destination, with 2013 Utah Department of Transportation data estimating visitation of 1,773,786 people per year, comprising 1,200,801 non–ski resort visitors and 572,985 ski resort visitors (Lamborn and Burr 2016). This recreational use and corresponding canyon visitation is expected to continue to grow in the future.; The location of the UWCNF, adjacent to the large and actively growing urban and suburban Salt Lake County and Wasatch Front population centers, and containing world-renowned summer and winter–sport destinations, results in the UWCNF having one of the highest visitation rates of any national forest in the United States (Envision Utah 2010; USFS 2003).

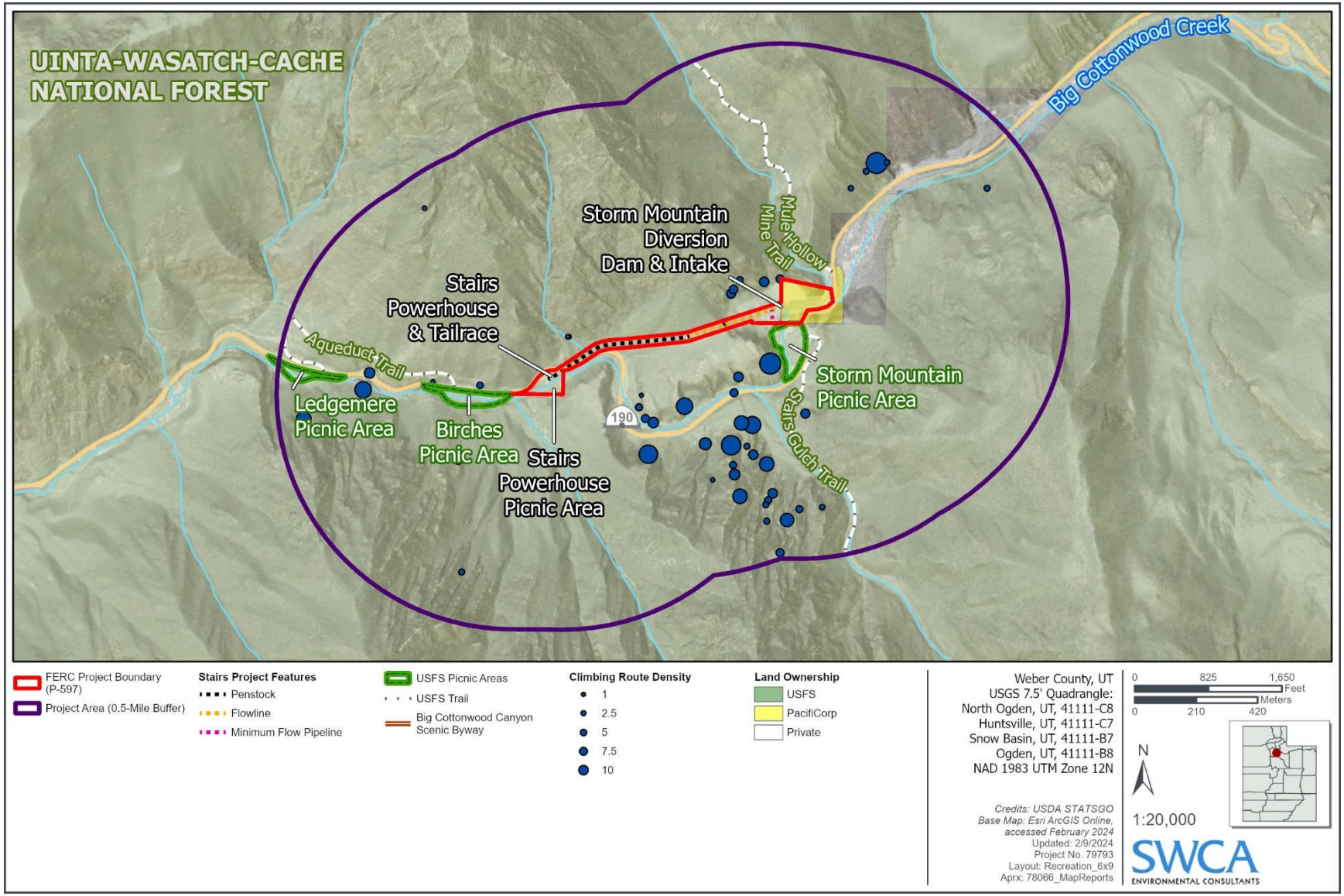

FIGURE 6-8 RECREATION OPPORTUNITIES IN THE PROJECT AREA

6.8.2.1 NATIONALLY OR REGIONALLY RECOGNIZED DESIGNATIONS

The Utah Scenic Byway Program serves as a support system to local scenic byway communities in their planning endeavors, grant acquisitions, and efforts to preserve and promote the unique roads throughout Utah that link travelers with tourism destinations, outstanding recreational opportunities, and public lands (Utah Office of Tourism 2023). Within the Utah Scenic Byway Program, one scenic byway traverses through the Project Area: Big Cottonwood Canyon Scenic Byway (Big Cottonwood Canyon Road). Big Cottonwood Canyon Scenic Byway is a 15-mile Utah Scenic Byway offering scenic driving opportunities in a mountainous setting with opportunities for hiking, trail running, mountain biking, fishing, picnicking, wildlife viewing, camping, backcountry skiing and snowboarding, and downhill skiing and snowboarding at Brighton Resort and Solitude Mountain Resort (Utah Office of Tourism 2017). Individuals may also ride bicycles up Big Cottonwood Canyon Road.

Within the Project Area, there are no designated National Wild and Scenic Rivers; rivers or river segments listed in the Nationwide Rivers Inventory; All-American Roads or National Scenic Byways; or National Scenic Trails, National Historic Trails, or National Recreation Trails.

6.8.3 RECREATION USE AND NEEDS IN THE PROJECT AREA

Although not required by the current license, PacifiCorp has developed and maintains a picnic area (Stairs Powerhouse Picnic Area) immediately south of the Stairs Project powerhouse and partially within the Project Boundary. The area is managed through an SUP from the USFS (PacifiCorp 1998). The most recent and relevant recreation use data for recreation within the Project Boundary were provided in PacifiCorp's 2015 *Licensed Hydropower Development Recreation Report for Stairs Hydroelectric Project FERC Project No. 597-003* (FERC Form 80) (FERC 2015). Stairs Powerhouse Picnic Area use over the last 12 years (with the exception of two seasons when the site was closed due to adjacent tailrace area construction that eliminated parking and access to the site) has averaged approximately 1,890 annual visitors, ranging from 1,269 to 2,560 visitors.

As discussed above, the Stairs Powerhouse Picnic Area is located on UWCNF lands and managed under an SUP with the USFS. Excluding dispersed use on PacifiCorp-owned lands at the Project's intake and diversion dam, all other recreational opportunities in the Project Area are

either managed by the USFS or located within UWCNF. Although the scope of monitoring extends well outside of Big Cottonwood Canyon and includes the entirety of the UWCNF, the USFS periodically monitors visitor use under its National Visitor Use Monitoring (NVUM) Program. Although not completely applicable to recreation in the Project Area, the most recent NVUM data are described in Section 6.8.3.1 below to provide a general view of recreation use in the UWCNF. Given the location of PacifiCorp's Stairs Powerhouse Picnic Area on UWCNF lands and within the state of Utah, recreation needs identified under both the *Revised Forest Plan Wasatch-Cache National Forest* (Forest Plan) (USFS 2003) and *Utah's Statewide Comprehensive Outdoor Recreation Plan 2019–2023* are also described in Sections 6.8.3.2 and 6.8.3.3 below (Utah SCORP) (UDNR 2019).

6.8.3.1 UINTA-WASATCH-CACHE NATIONAL FOREST VISITOR USE MONITORING

USFS's NVUM Program has two goals: 1) to produce estimates of the volume of recreational visitation to national forests and grasslands; and 2) to produce descriptive information about that visitation, including activity participation, demographics, visit duration, measures of satisfaction, and trip spending connected to the visit (USFS 2023c). The most recent visitor use report for the UWCNF was updated on June 28, 2023, and summarizes data collected during fiscal year 2017 (USFS 2023c). The following is a summary of that report.

Summary data obtained from the USFS indicate that total visits to the UWCNF in fiscal year 2017 were estimated at 8,457,000 individuals (USFS 2023c). Many people frequent more than one site during their visit, so estimates are further broken down by site visits, totaling 10,702 visits. The most frequented site or area associated with the UWCNF is General Forest Area (5,858,000 visits) followed by Day Use Developed (3,308,000 visits), Overnight Use Developed Sites (1,062,000 visits), and Designated Wilderness (474,000 visits). Site visits are further broken down by each activity in which an individual participated during that visit. The most common activities selected by survey participants were hiking or walking, viewing natural features, relaxing, viewing wildlife, downhill skiing, and driving for pleasure. The most selected main activity by survey participants was hiking or walking, followed by downhill skiing, cross-country skiing, viewing natural features, and relaxing (USFS 2023c). A complete list of activity participation results is shown in Table 6-15.

Demographic results estimate that 96.6 percent of visitors are white, followed by Hispanic/Latino (4.8 percent), Asian (3.2 percent), American Indian/Alaska native (1.6 percent), Hawaiian/Pacific Islander (0.8 percent), and Black/African American (0.5 percent). To compare these UWCNF visitation demographics with Utah race and ethnicity demographics, please see Section 6.11.1. Age distribution estimates that 22.6 percent of visitors are children under the age of 16, and 11.5 percent are over the age of 60. Most visitors (an estimated 58.1 percent), live within 25 miles of the UWCNF, and only 14.8 percent live 100 or more miles away (USFS 2023c).

TABLE 6-15 ACTIVITY PARTICIPATION RESULTS

ACTIVITY	PERCENTAGE OF PARTICIPATION	PERCENTAGE OF MAIN ACTIVITY	AVERAGE HOURS DOING MAIN ACTIVITY
Hiking or walking	49.4%	30.2%	2.2
Viewing natural features	44.4%	8.0%	1.6
Relaxing	32.1%	5.6%	13.1
Viewing wildlife	20.9%	0.6%	3.8
Downhill skiing	19.6%	18.5%	4.8
Driving for pleasure	13.8%	3.5%	2.2
Cross-country skiing	9.1%	8.1%	2.2
Developed camping	8.1%	4.1%	19.2
Picnicking	7.5%	1.8%	13.3
Fishing	6.1%	3.3%	4.8
Other (non-motorized)	5.7%	2.4%	1.9
Bicycling	5.6%	3.8%	1.7
Some other activity	5.0%	3.4%	2.1
Nature study	3.6%	0.1%	4.7
Nature center activities	3.4%	0.2%	2.8
Snowmobiling	2.5%	2.3%	4.5
Motorized trail activity	2.2%	0.8%	3.3
Visiting historic sites	2.0%	0.2%	1.0
Hunting	1.8%	1.4%	8.4
Gathering forest products	1.7%	0.2%	2.8
Non-motorized water	1.5%	0.9%	2.7
Resort use	1.4%	0.2%	26.9
Primitive camping	1.2%	0.3%	20.9

ACTIVITY	PERCENTAGE OF PARTICIPATION	PERCENTAGE OF MAIN ACTIVITY	AVERAGE HOURS DOING MAIN ACTIVITY
Off-highway vehicle (OHV) use	1.1%	0.3%	9.2
Backpacking	0.8%	0.2%	20.0
No activity reported	0.5%	1.1%	N/A
Motorized water activities	0.5%	0.3%	4.6
Horseback riding	0.1%	0.1%	3.1
Other motorized activity	0.0%	0.0%	0.0

Source: USFS (2023c).
Note: N/A = not applicable.

6.8.3.2 REVISED FOREST PLAN WASATCH-CACHE NATIONAL FOREST (2003)

The National Forest Management Act requires the development of management direction for each national forest. This "direction" is to be expressed through goals, objectives, standards, guidelines, management prescriptions, desired future conditions, and monitoring and evaluation requirements for the forest. The Forest Plan was completed in 2003 with considerable environmental analysis and public involvement to provide broad, program-level direction for management of the land and its resources (USFS 2003).

As defined in the Forest Plan's Goal No. 6, the USFS's primary goal for managing recreation in the UWCNF is to "manage for an array of recreation opportunities and settings to improve the quality of life for a variety of Forest recreation users. Balance growth and expansion of recreation by managing within the capability of sustainable ecosystems found on the Forest for today and the future" (USFS 2003). Within this forest-wide goal are seven subgoals, as detailed in Table 6-16 below. The Project currently contributes to Goal 6d, because PacifiCorp operates and manages a public picnic facility within the Project Boundary (see Section 6.8.1), and Goal 6g, because PacifiCorp maintains a minimum aesthetic flow of 4 cfs as required by Article 401 of its license (see Section 6.3.2). The Proposed Action would not alter the Project's current impact to recreational resource goals listed in the Forest Plan, because no new recreational resources are proposed, nor are any alterations to current Project facilities, operations, or maintenance activities proposed.

TABLE 6-16 FOREST-WIDE GOALS AND SUBGOALS FOR RECREATION ON THE UINTA-WASATCH-CACHE NATIONAL FOREST

FOREST-WIDE GOAL	FOREST-WIDE SUBGOAL
6. Recreation	6a. Increase Forest recreation user stewardship of resources and strengthen awareness of user ethics for reducing resource and social conflicts.
	6b. Involve Forest users in developing strategies for managing recreation to meet desired future conditions and address recreation pressures and demands.
	6c. Manage uses of new recreational technologies to provide for opportunities while preventing or minimizing negative social and/or resource impacts to the Forest.
	6d. Encourage private enterprise to develop recreational facilities on and off the Forest that provide for a range of recreation opportunities (e.g., camping and picnicking areas, trailheads, and interpretive sites).
	6e. Manage recreation use of undeveloped areas on the Forest to provide for desirable opportunities while preventing or reducing resource impacts and social conflicts.
	6f. Recognize and manage for the importance of scenic forest landscapes to overall recreation settings as well as to the quality of life for communities adjacent to the Forest.
	6g. Restore, maintain or enhance landscape scenic integrity across the variety of landscape character themes found on the Forest.

Source: USFS (2003).

6.8.3.3 UTAH'S STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN 2019–2023

The Utah SCORP reviews statewide recreational resources and identifies future needs surrounding recreational opportunities to improve recreation in the state (UDNR 2019). The Utah SCORP is prepared by the UDNR and the Utah Division of Parks and Recreation. The Utah SCORP lists the following recreation goals and strategies based on recreational needs identified in surveys of recreation professionals and state citizens state citizens (UDNR 2019):

- Goal 1: Provide funding and support for the development of new quality outdoor public recreation.
- Goal 2: Support and fund the renovation of existing public outdoor recreation facilities.
- Goal 3: Improve Utah's Land and Water Conservation Fund Program awareness and information sharing.

The Proposed Action would not alter the Project's current impact to recreational resource goals listed in the Utah SCORP, because no new recreational resources are proposed, nor are any alterations to current Project facilities, operations, or maintenance activities proposed.

6.8.4 ENVIRONMENTAL EFFECTS

As determined within PacifiCorp's Recreational Resources Technical Report (PacifiCorp 1998), a wide variety of recreational opportunities exist in the UWCNF, specifically within Big Cottonwood Canyon, and the narrow, steep, winding nature of the canyon restricts additional development of recreation facilities. Therefore, no recreational measures or facilities were considered feasible for the Project, and none were either recommended or required under the current license for the Stairs Project (FERC 1999; PacifiCorp 1998). PacifiCorp is proposing a single PME measure for recreation under the Proposed Action, which is to incorporate the Stairs Powerhouse Picnic Area as an official Project recreation site.

Under the Proposed Action, no changes to Project features or operations and maintenance activities are proposed. The Proposed Action is largely administrative in nature and thus would create no new impacts to recreation resources at the Project. Because no impacts to recreation are anticipated, and because there are no additional feasible recreation development opportunities at the Project, no recreation studies are proposed.

6.9 LAND USE AND COVER

This section provides a summary of land use and cover within the Project Boundary and Project Area. Land ownership is discussed in Section 4.0.

6.9.1 LAND USE

The Stairs Project is situated approximately two miles east of the mouth of Big Cottonwood Canyon within the UWCNF and along Big Cottonwood Creek, one of numerous creeks originating from the western slopes of the Wasatch Mountains and forming part of the Jordan River Watershed. Within the Project Boundary (13.3 acres), land use is restricted to Project operations and maintenance and the management of a publicly available recreation site—Stairs Powerhouse Picnic Area—adjacent to the Stairs Project powerhouse and managed under an SUP from the USFS. The diversion dam and associated spillway, intake, and impoundment are primarily located on the 4.6 acres of PacifiCorp lands at the upper end of the Project (PacifiCorp

1998). Downstream of the diversion dam parcel, all other Project features are located on lands owned and managed by the USFS. The flowline (underground) passes predominantly through undeveloped lands that are adjacent to the USFS's Storm Mountain Picnic Area and into a tunnel through the mountain before reaching the standpipe at the west end of the tunnel. From that point the penstock comprises both buried and above ground sections as it extends from the standpipe to the powerhouse, where powerhouse flow discharges into the Project's tailrace and is then routed directly from the tailrace into the intake for the Granite Project, unless the Granite Project is offline, and then water is then spilled back into the creek immediately downstream of the Granite Project Dam. The Stairs Project runs parallel to both Big Cottonwood Creek and Big Cottonwood Canyon Road. Given the narrow, steep, winding nature of the canyon and the presence of the creek and road, limited space exists for developed land uses other than the existing PacifiCorp and USFS facilities.

Available Salt Lake County tax parcel data were analyzed to determine zoning classifications within the Project Area. As summarized in Table 6-17 and depicted on Figure 6-9, predominant zoning within the Project Area is classified as Forestry Recreation (976.43 acres), County Right-of-Way (22.2 acres), Forestry Multifamily (0.49 acre) or Commercial Residential (2.24 acres), which is expected because the majority of lands within 0.5 mile of the Project Boundary in Big Cottonwood Canyon are located in the UWCNF. According to the USFS, five other SUPs have been issued within the Project Area: electric transmission line and Granite Project intake and flume (PacifiCorp), Big Cottonwood Canyon Road 190 (Utah Department of Transportation), a concession permit for Storm Mountain Picnic Area, a telephone line (CenturyLink/Lumen), and fiber optic and cell cables located in the highway road shoulder (Crown Castle) (Rosier 2024).

TABLE 6-17 SALT LAKE COUNTY ZONING CLASSIFICATIONS WITHIN THE PROJECT AREA

ZONING CLASSIFICATION	ACRES	PERCENTAGE OF PROJECT AREA
Forestry Recreation	976.43	97.51%
Forestry Multifamily	0.49	0.05%
County Right-of-Way (Big Cottonwood Canyon Road)	22.2	2.22%
Commercial Residential	2.24	0.22%
Total	1,001.36	100%

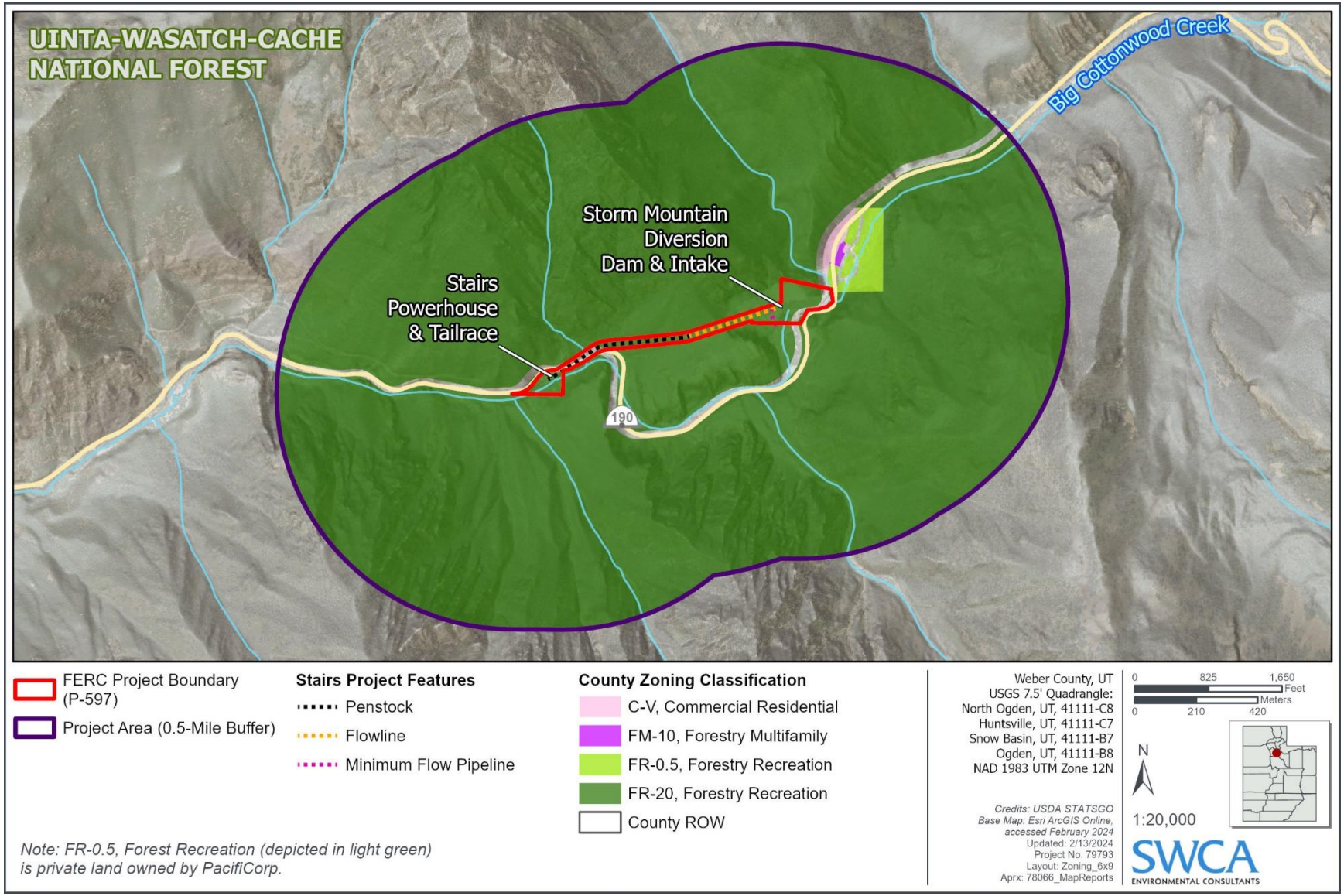

FIGURE 6-9 SALT LAKE COUNTY ZONING CLASSIFICATIONS WITHIN THE PROJECT AREA

6.9.2 LAND COVER

Land cover within the Project Area was estimated by analyzing the Multi-Resolution Land Characteristics Consortium's (MRLC Consortium's) National Land Use Cover Database, which provides land use information by generalizing land cover within an area (MRLC Consortium 2021). As summarized in Table 6-18 below and depicted on Figure 6-10, land cover within the Project Area is overwhelmingly classified as Evergreen Forest (574.0 acres), Deciduous Forest (144.3 acres), Mixed Forest (5.1 acres), Shrub/Scrub (242.8 acres), and then Barren Lands (0.2 acre), which is expected because the majority of lands within the Project Area are the undeveloped lands at higher elevations within Big Cottonwood Canyon (PacifiCorp 1998). As described above, development within the Project Area is limited to a narrow strip of land parallel to both Big Cottonwood Creek and Big Cottonwood Canyon Road. Given the narrow, steep, winding nature of the canyon and the presence of the creek and road, limited space exists for developed land uses other than the existing PacifiCorp and USFS facilities. The next most prominent land cover classifications within this area are Developed, Low Intensity (14.8 acres), Developed, Open Space (9.3 acres), and Developed, Medium Intensity (10.9 acres), incorporating Stairs Project facilities (surge tank, penstock, powerhouse, and tailrace), USFS recreation sites, and Big Cottonwood Canyon Road.

TABLE 6-18 NATIONAL LAND COVER DATABASE–MAPPED LAND COVER IN THE PROJECT AREA

LAND COVER	DESCRIPTION OF CLASSIFICATION	ACRES	PERCENTAGE OF PROJECT AREA
Evergreen Forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.	574.0	57.3%
Shrub/Scrub	Areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage, or trees stunted from environmental conditions.	242.8	24.3%

LAND COVER	DESCRIPTION OF CLASSIFICATION	ACRES	PERCENTAGE OF PROJECT AREA
Deciduous Forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.	144.3	14.4%
Developed, Low Intensity	Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20% to 49% of total cover. These areas most commonly include single-family housing units.	14.8	1.5%
Developed, Medium Intensity	Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50% to 79% of the total cover. These areas most commonly include single-family housing units.	10.9	1.1%
Developed, Open Space	Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large lot single-family housing units.	9.3	0.9%
Mixed Forest	Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.	5.1	0.5%
Barren Land (Rock/Sand/Clay)	Areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.	0.2	0.02%
Total		1,001.4	100%

Source: MRLC Consortium (2021).

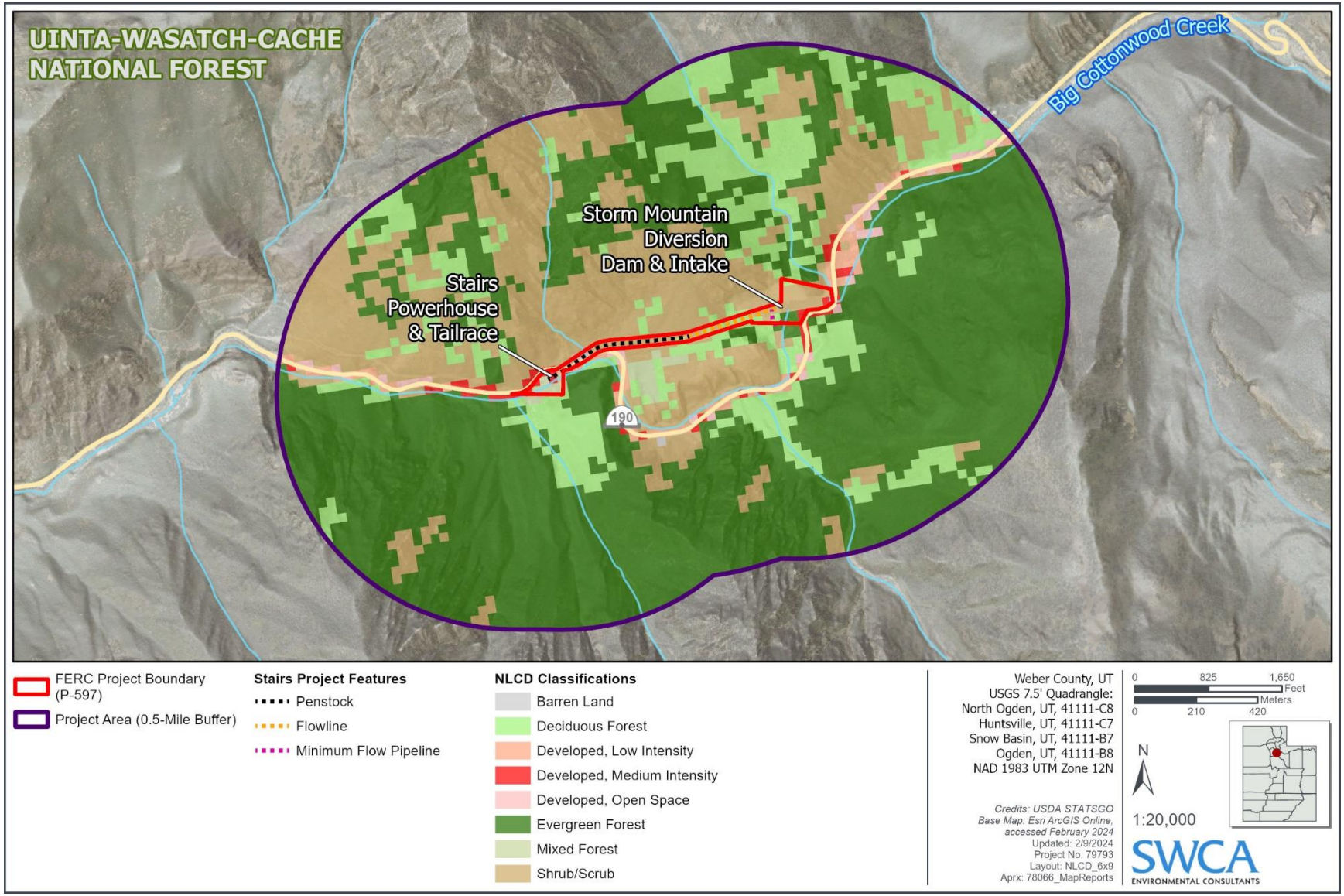

FIGURE 6-10 NATIONAL LAND COVER DATABASE–MAPPED LAND COVER IN THE PROJECT AREA

6.9.3 ENVIRONMENTAL EFFECTS

Under the Proposed Action, no changes to Project features, operations, or maintenance activities are proposed. The Proposed Action is largely administrative in nature and thus would create no new impact to land uses at the Project or in the Project Area. Because no impacts to land use are anticipated, no land use studies or PME measures are proposed for the resource.

6.10 AESTHETIC AND VISUAL RESOURCES

This section provides a summary of the aesthetic and visual resources known to occur within the Project Vicinity (for the purposes of this section, this is defined as a one-mile buffer around the Project Boundary) based on a review of available literature and documents. The one-mile buffer distance for the Project Vicinity was determined based on the lack of any proposed new Project facilities; degree of development in the city of Cottonwood Heights in Salt Lake County, Utah; and the steep and enclosed topography surrounding the Stairs Project in Big Cottonwood Canyon.

VISUAL CHARACTER OF PROJECT LANDS

The Stairs Project is surrounded by steep mountainous topography, which limits development to the base of the mountain slopes. Other developments in the Project Vicinity consist of the two-lane roadway (Big Cottonwood Canyon Road) through the canyon, chain-link fencing surrounding the dam and facilities, and a wooden monopole distribution line. The north-facing slopes of the mountains south of the Project are filled with coniferous and deciduous trees. Midway up the north-facing mountainside, vegetation grows sparser, and the mountains show more exposed rock and cliff faces.

6.10.1 VISUAL CHARACTER OF PROJECT VICINITY

Aesthetic or visual resources are the visible, physical features of a landscape that have an aesthetic value (i.e., scenic beauty) to viewers at typical viewing locations (residences, destination high points such as overlook trails, recreational areas, and vehicular travel routes). Physical features that make up the visible landscape include landforms and topography, water, vegetation, and human-made features (i.e., roadways, structures, and buildings). All these features contribute to the landscape and the visual character of an area. Within the Project Vicinity, the characteristic landscape is contained within the Semiarid Foothills ecoregion

(EPA 2022b). The Semiarid Foothills ecoregion (approximately 6,158 square miles) includes lower mountain slopes, foothills, ridgetops, and alluvial fans in the semiarid mountainous region found within 5,000 and 8,000 feet in elevation (EPA 2022b). The deep V-shape of the canyon though this region provides a continual and strong enclosed directional corridor for observers. Widely spaced juniper and mountain mahogany typically occur in a matrix of sagebrush, grama grass, Rocky Mountain maple (*Acer glabrum*), and Gambel oak. Wildlife habitat, livestock grazing, recreation, and water supply are the main uses of this ecoregion, although livestock grazing no longer occurs in Big and Little Cottonwood Canyons, and therefore does not occur in the Project Vicinity, with the exception of domestic goat grazing around some residences at the mouth of the canyons to reduce undergrowth as a form of wildfire prevention.

Within the Project Vicinity, residential development is limited, and the vast majority of the concentration of residences and commercial areas are located outside of Big Cottonwood Canyon in the city of Cottonwood Heights, which expands into the greater Salt Lake City area (the only exception is a small residential development upstream of the Project on private lands known as the Maxfield Lodge).

As detailed in Section 6.8, within the Project Vicinity, there are numerous USFS-developed recreational areas that are visited by both locals and tourists, including Dogwood Picnic Area, Ledgemere Picnic Area, Birches Picnic Area, and Storm Mountain Picnic Area, which intersects the Project Boundary immediately downstream of the diversion dam. PacifiCorp also has developed and maintains a picnic area (Stairs Powerhouse Picnic Area) on land formerly occupied by utility worker's cottages, immediately to the south of the Stairs Project powerhouse and partially within the Project Boundary. The picnic area is managed through a SUP from the USFS (PacifiCorp 1998). As noted in Section 6.8, PacifiCorp is proposing to incorporate the Stairs Powerhouse Picnic Area, located across the creek from the Stairs powerhouse, as a Project recreation site. Dispersed recreation opportunities such as fishing, rock climbing, hiking, and photography or nature viewing may also be found at the Project (FERC 1999). There are a number of traditional and sport climbing routes near the flowline and intake with access routes intersecting the Project Boundary (Mountain Project 2023). Additionally, there are fishing opportunities in the bypass reach of Big Cottonwood Creek, and the pond created by the diversion dam is used for dispersed fishing (PacifiCorp 1998). Visitors to recreational areas

would be sensitive to changes in the visual environment because they would likely be visiting these scenic areas for recreation within a natural landscape setting.

6.10.2 FEDERAL AND LOCAL VISUAL RESOURCE PLANNING OBJECTIVES

6.10.2.1 U.S. FOREST SERVICE MANAGEMENT SYSTEM

The Project is located within the UWCNF, which is managed by the USFS through the Forest Plan (USFS 2003). The USFS has inventoried lands in the Project Vicinity as part of the Scenery Management System, which systematically determines the relative value of scenery on USFS-managed lands (USFS 1995). The process involves identifying scenic components as they relate to people, mapping the components, and assigning a value for aesthetics. These components are described as one of five landscape character themes (LCT) with landscape character descriptions and Scenic Integrity Objectives (SIOs) (USFS 2003). Two Scenery Management System guidelines were identified in the Forest Plan to assess conformance with scenery management:

- G59: Manage forest landscapes according to LCT and SIOs as mapped (USFS 2003:4–48).
- G60: Resource management activities should not be permitted to reduce scenic integrity below objectives stated for management prescription categories (USFS 2003:4–48).

The LCTs for the Project Vicinity are classified as Natural Evolving (2,580.9 acres; 86.5 percent) for the majority of undeveloped USFS lands at higher elevations within the canyon; Natural Appearing (336.7 acres; 11.3 percent) for most lands adjacent to Big Cottonwood Canyon Road and Big Cottonwood Creek; and Private Land for the few parcels of private lands also found adjacent to Big Cottonwood Canyon Road and Big Cottonwood Creek (67.7 acres; 2.3 percent) (USFS 2003). Within the Project Boundary, LCTs are restricted to Natural Appearing (9.2 acres; 70.2 percent) and Private Lands (3.9 acres; 29.8 percent) (USFS 2003). The Natural Evolving theme "originates primarily from natural disturbances and succession of plants, with subtle changes due to indirect human activities" and "generally continues to change gradually over time through natural processes" (USFS 2003). The Natural Appearing theme has been influenced by both direct and indirect human activities but appears natural to most viewers. Natural elements such as native trees, shrubs, grasses, forbs, rock outcrops and streams or lakes dominate the views. Although there is evidence of human influence from historic use,

campgrounds, small organization camps, rustic structures and management activity, it is part of the valued built environment in the landscape to the majority of viewers (USFS 2003).

The SIO classifications for the Project Vicinity are classified as Very High (2,580.9 acres; 86.5 percent) for the majority of undeveloped USFS lands at higher elevations within the canyon; High (336.7 acres; 11.3 percent) for most lands adjacent to Big Cottonwood Canyon Road and Big Cottonwood Creek; and Private Land for the few parcels of private lands also found adjacent to Big Cottonwood Canyon Road and Big Cottonwood Creek (67.7 acres; 2.3 percent) (USFS 2003). Within the Project Boundary, SIO classifications are restricted to High (9.2 acres; 70.2 percent) and Private Lands (3.9 acres; 29.8 percent) (USFS 2003).

A Very High SIO within a Natural Evolving LCT "is" intact with only subtle if any deviations; the Natural Evolving LCT and sense of place is expressed at the highest possible level (USFS 2003). A High SIO within a Natural Appearing LCT "appears" intact; deviations may be present, but should repeat form, line, color, texture, and pattern common to the landscape character so completely and at such a scale that they are not evident (USFS 2003).

Big Cottonwood Canyon Road is also identified as a USFS scenic byway (USFS 2003), which is managed to protect and maintain its outstanding scenic quality though three specific regulations:

- G2.5-1: Timber harvest, vegetation/fuel treatments, prescribed fire and wildland fire uses are allowed when these activities are necessary to maintain or enhance the scenic setting for the long term.
- G2.5-2: Grazing is allowed and managed for compatibility with other elements of scenic byway corridor management plans.
- G2.5-3: Road building, new recreation development, and new trail construction are allowed for purposes of enhancing use and enjoyment of the scenic byway corridor, while maintaining or enhancing the scenic setting.

The scenery of the area (around Big Cottonwood Canyon) will continue to be a valuable and pleasurable natural backdrop for the nearby urban area. Views up and within the canyons of natural and developed areas will be carefully managed to sustain scenic resources, including

from the Scenic Byway of Big Cottonwood Canyon, and will continue to be managed for their recognized values (Cottonwood Canyons Scenic Byways Committee 2008; USFS 2003).

6.10.2.2 COTTONWOOD CANYONS SCENIC BYWAYS CORRIDOR MANAGEMENT PLAN

Big Cottonwood Canyon Scenic Byway operation and maintenance is under the jurisdiction of the Utah Department of Transportation and is also managed though the *Cottonwood Canyons Scenic Byways Corridor Management Plan* (CMP) (Cottonwood Canyons Scenic Byways Committee 2008). The Town of Alta, with assistance from the USFS, prepared a grant application to fund this CMP for both Big and Little Cottonwood Canyons in 2005. Big Cottonwood Canyon contains strong components of each of the six intrinsic qualities identified by the Federal Highway Administration: scenic, natural, historic, cultural, archaeological, and recreational qualities (Cottonwood Canyons Scenic Byways Committee 2008). The vision underlined in the CMP for the Big Cottonwood Canyon Scenic Byway includes continuing to offer outstanding scenery, access to year-round developed and undeveloped recreation, visitor education and information, and creating an enjoyable and satisfying experience for visitors to the byway (Cottonwood Canyons Scenic Byways Committee 2008). To sustain the excitement and reverence found in Big and Little Cottonwood Canyons, and to provide enhanced experiences with an educational component, the Big and Little Cottonwood Canyons Scenic Byways support and consider the following:

- Protection of the watershed and natural resources of each canyon.
- Sustaining and enhancing the scenery of natural areas.
- Increased public education about the outstanding qualities of each canyon.
- Safe and enjoyable byway travel for all users, including drivers, cyclists, and pedestrians.
- Preservation and enhancement of the cultural resources of each.
- Economic sustainability of the communities along the byways.
- Efficient and convenient transit and alternative transportation connecting byway destinations, as well as the byways to the Salt Lake Valley.
- High quality well-maintained recreation facilities.

Management of the Big Cottonwood Canyon Scenic Byway will be collaborative and include federal, state, and local governments; businesses; residents; and the general public.

6.10.2.3 COUNTY AND LOCAL PLANS

PacifiCorp has reviewed the following county and local plans:

- *Salt Lake County West General Plan* (Salt Lake County 2022)
- *Cottonwood Heights General Plan* (City of Cottonwood Heights 2005)
- *Sensitive Lands Evaluation and Development Standards (SLEDS)* 2023 Ordinance Amendment (City of Cottonwood Heights 2023a).

The *Salt Lake County West General Plan* focuses on the visual and aesthetic quality of future infrastructure, including electrical lines, substations, buildings, and landscapes. This plan encourages future developments be designed to be aesthetically pleasing and minimize visual and environmental impacts (Salt Lake County 2022).

The *Cottonwood Heights General Plan* has a stated objective to protect visual and scenic resources by requiring development to proceed in a way that respects key viewsheds. This document highlights ridgelines as being one of the most visually striking features of the foothills and suggests designating significant ridgelines for protection from development. It also suggests protecting the foothills, ridgelines and existing vegetation for their aesthetic qualities, which are vital to the city's attractiveness and economic viability (City of Cottonwood Heights 2005). This document alters a few existing land use classifications, including the designation of a sensitive lands classification for areas with visual or environmental qualities that should be protected. This goal is represented in the 2023 draft of the SLEDS Ordinance Amendment (City of Cottonwood Heights 2023a). Once finalized,[4] this amendment would require that future development regard the view of hillsides from outside the development area, protect viewsheds to the greatest extent reasonably practicable through terrain-sensitive building practices, increase ridgeline setbacks and the use of natural topography to shield human-made structures from the view of the valley, stipulate clustering of structures, and require setbacks between structures to consolidate the

[4] This plan was intended to be finalized in late 2023. As of the writing of this ICD, a final plan has not yet been published (City of Cottonwood Heights 2023a).

building envelope of a property. It also contains provisions for the protection of aesthetic values in riparian protection areas (City of Cottonwood Heights 2023a).

Because the Stairs Project is an existing facility and there are no plans for new construction, the Stairs Project is in conformance with all of the goals or objectives in these plans.

6.10.3 ENVIRONMENTAL EFFECTS

Under the Proposed Action, no changes to Project features or operations and maintenance activities are proposed. The Proposed Action is administrative in nature, and because there are no proposed changes to infrastructure, operations, or maintenance, it therefore would create no new visual contrasts; changes in views from residences, recreation areas, or travel routes, including the Big Cottonwood Canyon Scenic Byway; or impacts to current scenic designations.

6.11 SOCIOECONOMIC RESOURCES

This section provides the socioeconomic context of the Project Vicinity, defined as Salt Lake County and the City of Cottonwood Heights for the purposes of the socioeconomic analysis. References to statewide socioeconomic conditions are included for additional context. Cottonwood Heights is the largest incorporated city near the Stairs Project.

6.11.1 POPULATIONS PATTERNS AND DIVERSITY

In 2021, the total population of Cottonwood Heights was approximately 33,597 people, representing a 0.2 percent increase from the year 2010. In comparison, the total population of Salt Lake County was estimated to be 1,185,238 people in 2021, which represented a 17.3 percent increase from the year 2010 (Headwaters Economics 2023a, 2023b).

The ethnic composition of the city of Cottonwood Heights was primarily residents who identify as “white alone” (91.4 percent); “white alone, not Hispanic or Latino” (88.5 percent); and “Hispanic or Latino” (4.6 percent) (U.S. Census Bureau 2023a). Table 6-19 provides percentages of the ethnic groups represented in the U.S. Census Bureau data for Cottonwood Heights, Salt Lake County, and Utah.

TABLE 6-19 RACE AND ETHNICITY IN COTTONWOOD HEIGHTS, SALT LAKE COUNTY, AND UTAH

RACE AND ETHNICITY	COTTONWOOD HEIGHTS (%)	SALT LAKE COUNTY (%)	UTAH (%)
American Indian and Alaska Native alone	0.2	1.4	1.5
Asian alone	2.4	4.8	2.8
Black or African American alone	0.4	2.4	1.6
Hispanic or Latino	4.6	19.7	15.1
Native Hawaiian and Pacific Islander alone	0.4	1.9	1.2
White alone, not Hispanic or Latino	88.5	68.9	76.7
Two or more races	3.9	3.1	2.9
White alone	91.4	86.4	90.0

Source: U.S. Census Bureau (2023a).

As of 2021, 6.12 percent of Cottonwood Heights residents (approximately 2,006 people) and 12.9 percent of Salt Lake County (approximately 151,000 people) were born outside of the United States (Data USA 2023a, 2023b). English is the most dominant language spoken at home in both Cottonwood Heights and in Salt Lake County (91.4 percent Cottonwood Heights; 78.2 percent Salt Lake County). In Cottonwood Heights, the second most popular languages spoken at home are other Indo-European languages (3.5 percent), as compared to Salt Lake County, where the second most popular language spoken at home is Spanish (13.6 percent) (U.S. Census Bureau 2023b, 2023c).

Women make up just over half of the population in Cottonwood Heights (51.4 percent), and just under half in Salt Lake County (49.3 percent). People in Cottonwood Heights and Salt Lake County aged 18 or younger make up 21.7 and 25.0 percent of the population, respectively (U.S. Census Bureau 2023a). Table 6-20 details age groups in the Project Vicinity.

TABLE 6-20 AGE GROUPS IN COTTONWOOD HEIGHTS, SALT LAKE COUNTY, AND UTAH

AGE	COTTONWOOD HEIGHTS (%)	SALT LAKE COUNTY (%)	UTAH (%)
Under 5 years	5.2	6.3	6.9
Under 18 years	21.7	25.0	27.6
18 to 24 years	8.5	10.0	11.8
25 to 29 years	6.7	8.3	7.6
30 to 34 years	6.2	8.0	6.9
35 to 39 years	7.5	7.7	7.1
40 to 44 years	6.8	7.1	6.7
45 to 49 years	7.1	6.1	5.7
50 to 54 years	5.4	5.4	4.9
55 to 59 years	6.6	5.0	4.7
60 to 64 years	6.1	5.0	4.6
65 years and over	17.0	12.1	12.0

Source: U.S. Census Bureau (2023a).

6.11.2 HOUSEHOLD DISTRIBUTION, INCOME, AND EMPLOYMENT

Cottonwood Heights was originally known as Butlerville. The town was named after the Butler family, who settled the area as part of the Latter-day Saint pioneer migrations of the mid-nineteenth century. Lumber from the area was used to supply homes and railroads, and granite blocks from the nearby Little Cottonwood Canyon were used to construct the Latter-day Saint temple. Cottonwood Heights became an incorporated city in 2005 and continues to host gateway communities for the world-class ski resorts in both Big and Little Cottonwood Canyons (City of Cottonwood Heights 2023b).

According to the U.S. Census Bureau, there are 18,740 employed civilians aged 16 years or older in Cottonwood Heights, and 617,561 in Salt Lake County (U.S. Census Bureau 2023d). Most workers in Cottonwood Heights (66.8 percent) and Salt Lake County (69.6 percent) are employees of privately owned companies. The employment rate in both Cottonwood Heights (69.2 percent) and Salt Lake County (70.6 percent) are above the employment rate for the state of Utah (67.8 percent) (U.S. Census Bureau 2023b, 2023c, 2023e).

The top two major industries in Cottonwood Heights are educational services and health care and social services (24.2 percent) and professional, scientific and management and administrative

and waste management services (17.4 percent) These industries are also highest in Salt Lake County (20.7 and 14.0 percent, respectively) (Table 6-21). The number of workers and relative percentage of the workforce in various occupations is presented in Table 6-22 (U.S. Census Bureau 2023b, 2023c).

Workers in Salt Lake County average 38.2 hours of work per week, whereas in Cottonwood Heights, workers spend an average of 37.8 hours per week working (U.S. Census Bureau 2023b, 2023c). Most workers in both Salt Lake County and Cottonwood Heights spend approximately 22 minutes commuting to work, and the majority drive to work alone (65.4 and 70.1 percent, respectively). Approximately 16.9 percent of workers in Cottonwood Heights work from home and do not commute; in Salt Lake County, the percentage is slightly higher, at 19.0 percent (U.S. Census Bureau 2023b, 2023c).

TABLE 6-21 MAJOR INDUSTRIES IN THE PROJECT VICINITY

INDUSTRY	COTTONWOOD HEIGHTS (%)	SALT LAKE COUNTY (%)
Agriculture, forestry, fishing and hunting, and mining	0.6	0.7
Construction	6.3	7.8
Manufacturing	7.4	10.1
Wholesale trade	2.6	1.9
Retail trade	9.8	12.1
Transportation and warehousing, and utilities	3.5	7.3
Information	1.7	2.2
Finance and insurance, and real estate and rental and leasing	9.7	7.8
Professional, scientific, and management and administrative and waste management services	17.4	14.0
Educational services and health care and social assistance	24.2	20.7
Arts, entertainment, and recreation, and accommodation and food services	9.7	7.7
Other services, except public administration	4.2	4.3
Public administration	3.0	3.3

Source: U.S. Census Bureau (2023b, 2023c).

TABLE 6-22 MAJOR OCCUPATIONS IN THE PROJECT VICINITY

OCCUPATION	COTTONWOOD HEIGHTS		SALT LAKE COUNTY	
	NUMBER OF WORKERS	PERCENTAGE OF TOTAL	NUMBER OF WORKERS	PERCENTAGE OF TOTAL
Management, business, science and arts occupations	10,002	53.4%	280,190	45.3%
Service occupations	2,330	12.4%	88,758	14.4%
Sales (including real estate) and office occupations	4,089	21.8%	138,483	22.4%
Natural resources, construction, and maintenance occupations	1,053	5.6%	54,154	8.8%
Production, transportation, and material moving occupations	1,266	6.7%	90,743	14.7%

Source: U.S. Census Bureau (2023b, 2023c, 2023e).

6.11.3 EDUCATION

Cottonwood Heights has a greater percentage of the population aged 25 and older who have obtained a high school degree or higher (97 percent) than Salt Lake County or Utah (91.1 and 93.0 percent, respectively) (U.S. Census Bureau 2023a). Table 6-23 provides the percentages of residents in the Project Vicinity by level of education attained.

TABLE 6-23 EDUCATIONAL ATTAINMENT IN THE PROJECT VICINITY

EDUCATIONAL ATTAINMENT	COTTONWOOD HEIGHTS (%)	SALT LAKE COUNTY (%)
High school or equivalent degree	15.1	22.5
Some college, no degree	19.4	20.6
Associate's degree	7.9	9.1
Bachelor's degree	33.4	24.8
Graduate or professional degree	21.3	14.1

Source: U.S. Census Bureau (2023a, 2023b).

6.11.4 PROJECT EMPLOYMENT SOURCES

PacifiCorp employs approximately 6,000 people throughout its service area, which encompasses Washington, Oregon, California, Idaho, Utah, and Montana. The Stairs Project has two operators and is normally staffed in conjunction with the Granite Project with an operator on duty during the day and available for off-hours callout 7 days a week. Personnel coordinate the water outflow of the Stairs Project with the downstream Granite Project and the BCCWTP. Another six full-time maintenance employees switch duties between this Project and the 14 other PacifiCorp hydropower facilities located across Idaho and Utah in PacifiCorp's Hydro East area (Idaho and Utah), with an additional two full-time operators assigned to the Stairs and Granite Projects (PacifiCorp 2023). There are also 10 PacifiCorp renewable resources staff and additional management and contractors that support the Stairs Project and other PacifiCorp hydroelectric projects in the Hydro East area.

6.11.5 ENVIRONMENTAL EFFECTS

Under the Proposed Action, no impacts to socioeconomic conditions are expected because no changes to the operation or maintenance of any parts of the Project are proposed. Therefore, no PME measures or studies are proposed at this time.

6.12 ENVIRONMENTAL JUSTICE

6.12.1 INTRODUCTION

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, applies to federal agencies that conduct activities that may substantially affect human health or the environment. In addition, Executive Order 13985, *Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*, sets expectations for a whole-of-government approach to advancing equity for all. Therefore, consistent with these executive orders and the Council for Environmental Quality's (CEQ) environmental justices (EJ) guidance under NEPA, PacifiCorp has reviewed demographic and EJ data from the U.S. Census Bureau and the EPA's EJ tool (EJScreen) for the Project Vicinity (defined as census tract block groups that intersect a one-mile radius around the Project Boundary).

The CEQ EJ guidelines for evaluating the potential environmental effects of projects under NEPA use three criteria for identifying EJ communities: 1) the percentage of a census block group's population self-identifying as something other than "White-alone not Hispanic" (referred to as minority) exceeds 50 percent, or, the percentage is 10 percent greater than the same measure in the county; 2) the percentage of a block group's residents self-identifying as American Indian or Alaska Native Alone exceeds the same measure in the county; or 3) the percentage of a block group's residents whose income is less than two times (200 percent) the poverty level is greater than the same measure in the county.

Minority populations include the following population groups: American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, Black or African-American, some other race (other than White), a combination of two or more races, or Hispanic. Except for White non-Hispanics, all other racial and ethnic groups are considered minorities; therefore, the total minority population of an area is calculated by subtracting the White non-Hispanic population from the total population.

6.12.2 RESULTS

For this analysis, EJScreen was used to identify census tract block groups the Project Vicinity and whether EJ communities were present. The two census tract block groups present within the Project Vicinity are Census Tracts 1101.06 Block Group 3 and 1101.05 Block Group 2 (Figure 6-11).

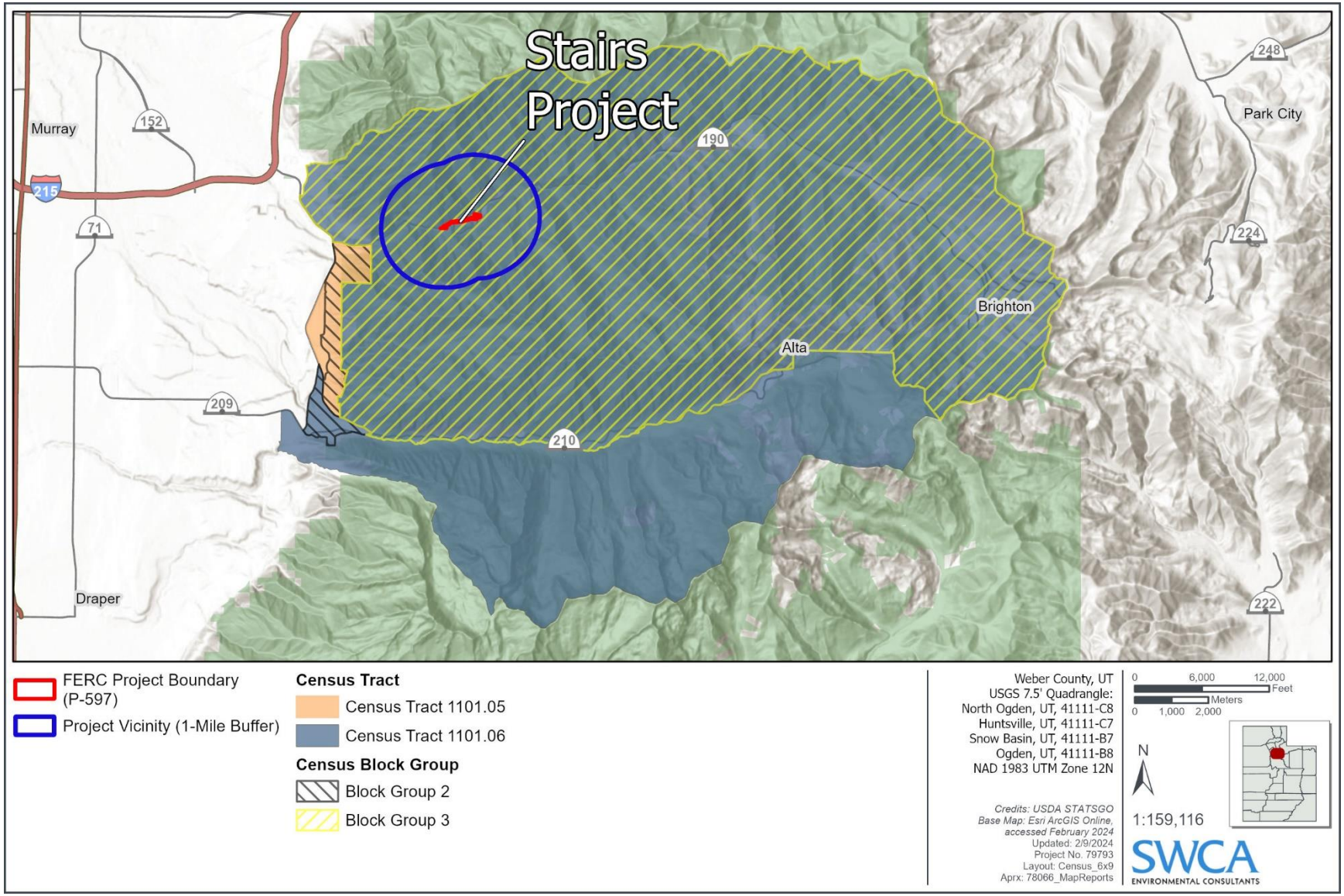

FIGURE 6-11 CENSUS TRACTS AND BLOCK GROUPS IN THE PROJECT VICINITY

Census Tract 1101.06 Block Group 3 has a population of 526 people over an area of 64.65 square miles. Of this group of people, 15 percent are low income, 7 percent are people of color, 13 percent are persons with disabilities, and 93 percent of the population identifies as white alone.

Census Tract 1101.05 Block Group 2 has a population of 881 people over an area of 1.09 square miles. Of this group of people, 20 percent are low income, 5 percent are people of color, 6 percent are persons with disabilities, and 95 percent of the population identifies as white alone.

Data tables from the U.S. Census Bureau were used to calculate thresholds for the CEQ's EJ criteria. Based on these data, no EJ communities are present in the Project Vicinity (Table 6-24).

TABLE 6-24 ENVIRONMENTAL JUSTICE COMMUNITIES IN THE PROJECT VICINITY

	TOTAL POPULATION	WHITE ALONE NOT HISPANIC (%)	BLACK OR AFRICAN AMERICAN (%)	AMERICAN INDIAN AND ALASKA NATIVE (%)	ASIAN (%)	NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER (%)	SOME OTHER RACE (%)	TWO OR MORE RACES (%)	HISPANIC OR LATINO (%)	TOTAL RACIAL MINORITY (%)	PERCENTAGE BELOW 200% OF THE POVERTY LINE	EJ COMMUNITY? Y/N
Utah	3,231,370	77.3	1.1	0.8	2.3	0.9	0.3	3.0	14.4	22.7	24.7%	N
Salt Lake County	1,173,331	69.8	1.7	0.6	4.0	1.5	0.4	3.2	18.8	30.2	23.0%	N
Census Tract 1101.06, Block Group 3	526	92.6	0.0	0.0	0.0	0.0	3.6	0.0	7.4	0.0	14.6%	N
Census Tract 1101.05, Block Group 2	881	95.5	0.0	0.0	1.6	0.0	0.0	3.0	0.0	4.5	19.8%	N

Source: U.S. Census Bureau (2021a, 2021b).

6.12.3 ENVIRONMENTAL EFFECTS

As noted above, the census tract block groups within the Project Vicinity are Census Tracts 1101.06, Block Group 3 and 1101.05, Block Group 2. As shown in Table 6-24, neither of the block groups present in the Project Vicinity meet the CEQ EJ criteria for identifying as an EJ community. Therefore, it can be reasonably assumed that no EJ community would be disproportionately exposed to environmental harms or have an increased vulnerability to such hazards (Foresight Design Initiative 2017), if any were identified, through implementation of the Proposed Action.

7.0 PROPOSED STUDIES AND PROTECTION, MITIGATION, AND ENHANCEMENT MEASURES

Per 18 CFR 4.38(b)(2)(vii), descriptions of any proposed studies (none are proposed given the administrative nature of the proposed action), and PME measures are required. PacifiCorp's proposed PME measures are outlined in Table 7-1. As discussed throughout this document, there would be no construction of new facilities, changes to current facilities or infrastructure, or changes to Project operations or maintenance activities under the Proposed Action.

TABLE 7-1 PROPOSED PROTECTION, MITIGATION, AND ENHANCEMENT MEASURES (NO STUDIES ARE PROPOSED)

RESOURCE AREA	PME MEASURES
Fisheries	Maintain 4 cfs minimum flow.
Recreation	1) Continue annual consultation meeting with the USFS. 2) Fully incorporate the Stairs Powerhouse Picnic Area into the Project Boundary; continue to maintain and offer site by reservation.
Cultural Resources	Develop, implement, and maintain a historic properties management plan.

8.0 STATEMENT OF PUBLIC UTILITY REGULATORY POLICIES ACT BENEFITS

PacifiCorp is a domestic corporation and is not claiming preference under Section 7(a) of the Federal Power Act, nor seeking benefits under Section 210 of the Public Utility Regulatory Policies Act of 1978.

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Appendix A: Early Consultation Record

January 31, 2024 Meeting Correspondence

Identified Agencies

From:	Emily Waters
Sent:	Monday, January 8, 2024 12:34 PM
To:	teresa.gray@slcgov.com; Michelle.Barry@slcgov.com; Tamara.prue@slcgov.com; Scott.Catton@tu.org; michaelslater@utah.gov; charles.rosier@usda.gov; Peter.Gomben@usda.gov; Weekley, George M; dannette_weiss@fws.gov; Sandy Wingert
Cc:	Davies, Eve (PacifiCorp); Annie Ng; Charlotte Garris
Subject:	Stairs Hydroelectric Project: Conduit Exemption Application & Preliminary Meeting for Key Stakeholders

Hello,

PacifiCorp is the owner, operator, and licensee of the 1.2-megawatt Stairs Hydroelectric Project (Stairs Project or Project), Federal Energy Regulatory Commission (FERC) Project No. 576. The Project is located on Big Cottonwood Creek in Salt Lake County, Utah. The current Project license was issued by FERC on September 30, 1999, with an effective date of July 1, 2000, and expires on June 30, 2030. This means that PacifiCorp would be required to file a Notice of Intent to initiate relicensing of the Project no later than June 30, 2025. You are receiving this email because PacifiCorp has identified your organization as a key stakeholder for preliminary consultation.

Water from the Stairs Project is released directly into PacifiCorp's Granite Project (FERC Project No. 14293) intake, which has already been classified by FERC as a conduit that conveys water directly to the Big Cottonwood Canyon Water Treatment Plant (BCWTP) for municipal consumption. Because the Stairs Project also acts as a conduit by conveying water directly to the BCWTP via the Granite Project, PacifiCorp is proposing to apply with FERC for the conversion of the Project to the more appropriate, conduit exemption, and correspondingly surrender the current FERC license once a conduit exemption has been granted. This proposed action is largely an administrative action, as there would be no construction of new facilities or changes to existing facilities, ownership, or operations and maintenance activities. PacifiCorp would continue to maintain the Project in accordance with applicable federal and state dam safety standards.

Pursuant to Title 18 Code of Federal Regulations Section 4.38, the formal consultation process will begin with the public distribution of an Initial Consultation Document (ICD) that describes the current Project and the proposed action, followed by a formal review and comment period, a joint agency meeting, and Project site visit. It is important to note that since this is largely an administrative action, PacifiCorp is proposing no studies at this time. However, study requests may be submitted to FERC during the ICD review window.

Prior to initiation of the formal consultation process, PacifiCorp identified your organization as a key stakeholder for PacifiCorp's Stairs Project and would like to invite you to a preliminary meeting in January 2024 to informally discuss the proposal and answer any initial questions. Please fill out the following doodle poll with all time slots for which you could attend.

https://doodle.com/meeting/participate/id/aQA1ogLa/vote.

Should there be a more appropriate or additional contact from your organization to participate in this meeting, please reply with their contact information and we will ensure they are included in this poll and future communication.

On behalf of PacifiCorp, we look forward to discussing this proposal with you. Please reach out to Eve Davies (Eve.Davies@PacifiCorp.com) or myself if you have any questions.

Sincerely,

Emily Waters, MS | *she/her*
Project Manager, FERC Hydropower

From:	Emily Waters
Sent:	Thursday, February 8, 2024 12:06 PM
To:	teresa.gray@slcgov.com; Michelle.Barry@slcgov.com; Tamara.prue@slcgov.com; Scott.Catton@tu.org; michaelslater@utah.gov; charles.rosier@usda.gov; Peter.Gomben@usda.gov; Weekley, George M; dannette_weiss@fws.gov; Sandy Wingert; chriscrockett@utah.gov
Cc:	Davies, Eve (PacifiCorp); Annie Ng; Charlotte Garris
Subject:	Stairs Hydroelectric Project Conduit Exemption Preliminary Meeting: Follow-Up
Attachments:	Stairs_PreliminaryMtgNotes_20240131.pdf; Stairs_PreliminaryMtg_Presentation_20240131.pdf

Good afternoon,

On behalf of Eve and myself, thank you again to those that were able to join us last week to informally discuss PacifiCorp's proposal to apply with FERC for the conversion of the Stairs Project to the more appropriate, conduit exemption classification and correspondingly surrender the current FERC license once a conduit exemption has been granted. As discussed on the call, the formal consultation process will begin with the public distribution of an Initial Consultation Document (ICD) – currently planned for mid-February – that describes the current Project and the proposed action, followed by a formal review/comment period and joint agency meeting and site visit. You will be cc'd on the FERC filing when it is made, and we would be happy to further address any specific comments or question you may have regarding that filing and subsequent comment deadlines.

We would like to invite you and your agency/interested party to provide preliminary support for PacifiCorp's proposal to be included as an appendix to our ICD. If you are willing, this would be as simple as a brief response to this email stating as such. We would also love to hear any feedback, questions, or other comments that you may have regarding the proposal, whether they support the proposed action or not. Note that we will be filing the ICD by the end of next week, so if you do wish to voice support/concern for PacifiCorp's proposal in the ICD appendix (which would be most appreciated!), we would need your response in short order.

Again, we greatly appreciate your time and feedback regarding this proposal so far and look forward to initiating the formal process and discussing further with you and your agency/interested party. Please reach out with any questions or concerns.

Thank you-

Eve Davies, Principal Scientist
Renewable Resources, PacifiCorp
1407 West North Temple, Ste. 210
Salt Lake City, Utah 84116
801-220-2245
801-232-1704 (cell)

Emily Waters, MS | *she/her*
Project Manager, FERC Hydropower

SWCA Environmental Consultants
P 801.658.2256 | C 360.713.4281

Note: my typical work hours are Mon – Fri, 7 a.m. – 3:30 p.m. Pacific time

January 31, 2024 Meeting Correspondence

Ute Indian Tribe of the Uintah and Ouray Reservation, Utah

From: Emily Waters
Sent: Thursday, February 8, 2024 2:24 PM
To: juliusm@utetribe.com
Cc: Davies, Eve (PacifiCorp); Charlotte Garris; Annie Ng
Subject: Stairs Hydroelectric Project Conduit Exemption Preliminary Meeting: Follow-Up
Attachments: Stairs_PreliminaryMtgNotes_20240131.pdf; Stairs_PreliminaryMtg_Presentation_20240131.pdf

Good afternoon,

On behalf of Eve and myself, thank you again to those that were able to join us last week to informally discuss PacifiCorp's proposal to apply with FERC for the conversion of the Stairs Project to the more appropriate, conduit exemption classification and correspondingly surrender the current FERC license once a conduit exemption has been granted. As discussed on the call, the formal consultation process will begin with the public distribution of an Initial Consultation Document (ICD) – currently planned for mid-February – that describes the current Project and the proposed action, followed by a formal review/comment period and joint agency meeting and site visit. You will be cc'd on the FERC filing when it is made, and we would be happy to further address any specific comments or question you may have regarding that filing and subsequent comment deadlines.

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Again, we greatly appreciate your time and feedback regarding this proposal so far and look forward to initiating the formal process and discussing further with you. Please reach out with any questions or concerns.

Thank you-

Eve Davies, Principal Scientist
Renewable Resources, PacifiCorp
1407 West North Temple, Ste. 210
Salt Lake City, Utah 84116
801-220-2245
801-232-1704 (cell)

Emily Waters, MS | *she/her*
Project Manager, FERC Hydropower

SWCA Environmental Consultants
P 801.658.2256 | C 360.713.4281

From: Emily Waters
Sent: Tuesday, January 23, 2024 2:27 PM
To: juliusm@utetribe.com
Cc: Annie Ng; Charlotte Garris; Davies, Eve (PacifiCorp)
Subject: RE: Stairs Hydroelectric Project: Conduit Exemption Application & Preliminary Meeting for Key Stakeholders

Hello,

I'm following up from my prior email to share that a virtual meeting to discuss the Stairs Hydroelectric Project has been scheduled for Wednesday, January 31st, 2024 from 1:00 – 2:00 pm Mountain Time. Your participation is welcome, and an invite will be sent shortly. Should you be unable to attend, meeting notes, including the presentation slides, will be sent to all invitees following the meeting. If you have any questions, please feel free to contact either Eve Davies (eve.davies@pacificorp.com) or myself. Thank you.

Sincerely,

Emily Waters, MS | *she/her*
Project Manager, FERC Hydropower

SWCA Environmental Consultants
P 801.658.2256 | C 360.713.4281

Note: my typical work hours are Mon – Fri, 7 a.m. – 3:30 p.m. Pacific time

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From: Emily Waters
Sent: Monday, January 8, 2024 11:42 AM
To: juliusm@utetribe.com
Cc: Annie Ng <Annie.Ng@swca.com>; Charlotte Garris <Charlotte.Garris@swca.com>; Davies, Eve (PacifiCorp) <Eve.Davies@PacifiCorp.com>
Subject: Stairs Hydroelectric Project: Conduit Exemption Application & Preliminary Meeting for Key Stakeholders

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Water from the Stairs Project is released directly into PacifiCorp's Granite Project (FERC Project No. 14293) intake, which has already been classified by FERC as a conduit that conveys water directly to the Big Cottonwood Canyon Water Treatment Plant (BCWTP) for municipal consumption. Because the Stairs Project also acts as a conduit by conveying water directly to the BCWTP via the Granite Project, PacifiCorp is proposing to apply with FERC for the conversion of the Project to the more appropriate, conduit exemption, and correspondingly surrender the current FERC license once a

January 31, 2024 Meeting Correspondence

Skull Valley Band of Goshute Indians of Utah

From: Emily Waters
Sent: Thursday, February 8, 2024 2:09 PM
To: candanceb@svgoshutes.com; Danielm@svgoshutes.com
Cc: Davies, Eve (PacifiCorp); Annie Ng; Charlotte Garris
Subject: RE: Stairs Hydroelectric Project Conduit Exemption Preliminary Meeting: Follow-Up
Attachments: Stairs_PreliminaryMtgNotes_20240131.pdf; Stairs_PreliminaryMtg_Presentation_20240131.pdf

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Again, we greatly appreciate your time and feedback regarding this proposal so far and look forward to initiating the formal process and discussing further with you. We realize that tribal elections recently occurred and are therefore including both representatives we have on file for transparency; moving forward, we will update our contact list. Please reach out with any questions or concerns.

Thank you-

Eve Davies, Principal Scientist
Renewable Resources, PacifiCorp
1407 West North Temple, Ste. 210
Salt Lake City, Utah 84116
801-220-2245
801-232-1704 (cell)

Emily Waters, MS | *she/her*
Project Manager, FERC Hydropower

SWCA Environmental Consultants
P 801.658.2256 | C 360.713.4281

From: Emily Waters
Sent: Tuesday, January 23, 2024 2:26 PM
To: Danielm@svgoshutes.com
Cc: Annie Ng; Charlotte Garris; Davies, Eve (PacifiCorp)
Subject: RE: Stairs Hydroelectric Project: Conduit Exemption Application & Preliminary Meeting for Key Stakeholders

Hello,

I'm following up from my prior email to share that a virtual meeting to discuss the Stairs Hydroelectric Project has been scheduled for Wednesday, January 31st, 2024 from 1:00 – 2:00 pm Mountain Time. Your participation is welcome, and an invite will be sent shortly. Should you be unable to attend, meeting notes, including the presentation slides, will be sent to all invitees following the meeting. If you have any questions, please feel free to contact either Eve Davies (eve.davies@pacificorp.com) or myself. Thank you.

Sincerely,

Emily Waters, MS | *she/her*
Project Manager, FERC Hydropower

SWCA Environmental Consultants
P 801.658.2256 | C 360.713.4281

Note: my typical work hours are Mon – Fri, 7 a.m. – 3:30 p.m. Pacific time

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From: Emily Waters
Sent: Monday, January 8, 2024 11:42 AM
To: Danielm@svgoshutes.com
Cc: Annie Ng <Annie.Ng@swca.com>; Charlotte Garris <Charlotte.Garris@swca.com>; Davies, Eve (PacifiCorp) <Eve.Davies@PacifiCorp.com>
Subject: Stairs Hydroelectric Project: Conduit Exemption Application & Preliminary Meeting for Key Stakeholders

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January 31, 2024 Meeting Correspondence

Confederated Tribes of the Goshute Reservation, Nevada and Utah

From: Emily Waters
Sent: Thursday, February 8, 2024 1:57 PM
To: amos.murphy@ctgr.us; virgil.johnson@ctgr.us
Cc: Davies, Eve (PacifiCorp); Annie Ng; Charlotte Garris
Subject: Stairs Hydroelectric Project Conduit Exemption Preliminary Meeting: Follow-Up
Attachments: Stairs_PreliminaryMtgNotes_20240131.pdf; Stairs_PreliminaryMtg_Presentation_20240131.pdf

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Eve Davies, Principal Scientist
Renewable Resources, PacifiCorp
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801-232-1704 (cell)

Emily Waters, MS | *she/her*
Project Manager, FERC Hydropower

SWCA Environmental Consultants
P 801.658.2256 | C 360.713.4281

From: Emily Waters
Sent: Tuesday, January 23, 2024 2:20 PM
To: amos.murphy@ctgr.us
Cc: Davies, Eve (PacifiCorp); Annie Ng; Charlotte Garris
Subject: RE: Stairs Hydroelectric Project: Conduit Exemption Application & Preliminary Meeting for Key Stakeholders

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Sent: Monday, January 8, 2024 11:42 AM
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Cc: Annie Ng <Annie.Ng@swca.com>; Charlotte Garris <Charlotte.Garris@swca.com>; Davies, Eve (PacifiCorp) <Eve.Davies@PacifiCorp.com>
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January 31, 2024 Meeting Correspondence

Paiute Indian Tribe of Utah (Cedar Band of Paiutes, Kanosh Band of Paiutes, Koosharem Band of Paiutes, Indian Peaks Band of Paiutes, and Shivwits Band of Paiutes)

From: Emily Waters
Sent: Thursday, February 8, 2024 2:16 PM
To: cbow@utahpaiutes.org
Cc: Davies, Eve (PacifiCorp); Annie Ng; Charlotte Garris
Subject: Stairs Hydroelectric Project Conduit Exemption Preliminary Meeting: Follow-Up
Attachments: Stairs_PreliminaryMtgNotes_20240131.pdf; Stairs_PreliminaryMtg_Presentation_20240131.pdf

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Again, we greatly appreciate your time and feedback regarding this proposal so far and look forward to initiating the formal process and discussing further with you. Please reach out with any questions or concerns.

Thank you-

Eve Davies, Principal Scientist
Renewable Resources, PacifiCorp
1407 West North Temple, Ste. 210
Salt Lake City, Utah 84116
801-220-2245
801-232-1704 (cell)

Emily Waters, MS | *she/her*
Project Manager, FERC Hydropower

SWCA Environmental Consultants
P 801.658.2256 | C 360.713.4281

From: Emily Waters
Sent: Tuesday, January 23, 2024 2:25 PM
To: cbow@utahpaiutes.org
Cc: Annie Ng; Charlotte Garris; Davies, Eve (PacifiCorp)
Subject: RE: Stairs Hydroelectric Project: Conduit Exemption Application & Preliminary Meeting for Key Stakeholders

Hello,

I'm following up from my prior email to share that a virtual meeting to discuss the Stairs Hydroelectric Project has been scheduled for Wednesday, January 31st, 2024 from 1:00 – 2:00 pm Mountain Time. Your participation is welcome, and an invite will be sent shortly. Should you be unable to attend, meeting notes, including the presentation slides, will be sent to all invitees following the meeting. If you have any questions, please feel free to contact either Eve Davies (eve.davies@pacificorp.com) or myself. Thank you.

Sincerely,

Emily Waters, MS | *she/her*
Project Manager, FERC Hydropower

SWCA Environmental Consultants
P 801.658.2256 | C 360.713.4281

Note: my typical work hours are Mon – Fri, 7 a.m. – 3:30 p.m. Pacific time

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From: Emily Waters
Sent: Monday, January 8, 2024 11:42 AM
To: cbow@utahpaiutes.org; nsmall@sbtribes.com
Cc: Annie Ng <Annie.Ng@swca.com>; Charlotte Garris <Charlotte.Garris@swca.com>; Davies, Eve (PacifiCorp) <Eve.Davies@PacifiCorp.com>
Subject: Stairs Hydroelectric Project: Conduit Exemption Application & Preliminary Meeting for Key Stakeholders

Hello,

PacifiCorp is the owner, operator, and licensee of the 1.2-megawatt Stairs Hydroelectric Project (Stairs Project or Project), Federal Energy Regulatory Commission (FERC) Project No. 576. The Project is located on Big Cottonwood Creek in Salt Lake County, Utah. The current Project license was issued by FERC on September 30, 1999, with an effective date of July 1, 2000, and expires on June 30, 2030. This means that PacifiCorp would be required to file a Notice of Intent to initiate relicensing of the Project no later than June 30, 2025. You are receiving this email because PacifiCorp has identified your tribe as a key stakeholder for preliminary consultation.

Water from the Stairs Project is released directly into PacifiCorp's Granite Project (FERC Project No. 14293) intake, which has already been classified by FERC as a conduit that conveys water directly to the Big Cottonwood Canyon Water Treatment Plant (BCWTP) for municipal consumption. Because the Stairs Project also acts as a conduit by conveying water directly to the BCWTP via the Granite Project, PacifiCorp is proposing to apply with FERC for the conversion of the Project to the more appropriate, conduit exemption, and correspondingly surrender the current FERC license once a

January 31, 2024 Meeting Correspondence

Shoshone-Bannock Tribes of the Fort Hall Reservation

From: Emily Waters
Sent: Thursday, February 8, 2024 2:14 PM
To: ltyler@sbtribes.com; nsmall@sbtribes.com
Cc: Davies, Eve (PacifiCorp); Annie Ng; Charlotte Garris
Subject: Stairs Hydroelectric Project Conduit Exemption Preliminary Meeting: Follow-Up
Attachments: Stairs_PreliminaryMtgNotes_20240131.pdf; Stairs_PreliminaryMtg_Presentation_20240131.pdf

Good afternoon,

On behalf of Eve and myself, thank you again to those that were able to join us last week to informally discuss PacifiCorp's proposal to apply with FERC for the conversion of the Stairs Project to the more appropriate, conduit exemption classification and correspondingly surrender the current FERC license once a conduit exemption has been granted. As discussed on the call, the formal consultation process will begin with the public distribution of an Initial Consultation Document (ICD) – currently planned for mid-February – that describes the current Project and the proposed action, followed by a formal review/comment period and joint agency meeting and site visit. You will be cc'd on the FERC filing when it is made, and we would be happy to further address any specific comments or question you may have regarding that filing and subsequent comment deadlines.

We would like to invite you and your Tribe to provide preliminary support for PacifiCorp's proposal to be included as an appendix to our ICD. If you are willing, this would be as simple as a brief response to this email stating as such. We would also love to hear any feedback, questions, or other comments that you may have regarding the proposal, whether they support the proposed action or not. Note that we will be filing the ICD by the end of next week, so if you do wish to voice support/concern for PacifiCorp's proposal in the ICD appendix (which would be most appreciated!), we would need your response in short order.

Again, we greatly appreciate your time and feedback regarding this proposal so far and look forward to initiating the formal process and discussing further with you. We realize that tribal elections recently occurred and are therefore including both representatives we have on file for transparency; moving forward, we will update our contact list. Please reach out with any questions or concerns.

Thank you-

Eve Davies, Principal Scientist
Renewable Resources, PacifiCorp
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Salt Lake City, Utah 84116
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801-232-1704 (cell)

Emily Waters, MS | *she/her*
Project Manager, FERC Hydropower

SWCA Environmental Consultants
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From: Emily Waters
Sent: Tuesday, January 23, 2024 2:26 PM
To: nsmall@sbtribes.com
Cc: Annie Ng; Charlotte Garris; Davies, Eve (PacifiCorp)
Subject: RE: Stairs Hydroelectric Project: Conduit Exemption Application & Preliminary Meeting for Key Stakeholders

Hello,

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January 31, 2024 Meeting Correspondence

Northwestern Band of the Shoshone Nation

From: Emily Waters
Sent: Thursday, February 8, 2024 2:08 PM
To: dalex@nwbshoshone.com
Cc: Davies, Eve (PacifiCorp); Annie Ng; Charlotte Garris
Subject: Stairs Hydroelectric Project Conduit Exemption Preliminary Meeting: Follow-Up
Attachments: Stairs_PreliminaryMtgNotes_20240131.pdf; Stairs_PreliminaryMtg_Presentation_20240131.pdf

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Project Manager, FERC Hydropower

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Stairs Hydroelectric Project Preliminary Meeting Presentation – January 31, 2024

Preliminary Meeting for Conduit Exemption and Eventual License Surrender

Stairs Hydroelectric Project
(FERC Project No. 597)

Welcome

Stairs Project Team:

Eve Davies – Principal Environmental Scientist (PacifiCorp)
Nuria Holmes – FERC Technical Advisor (SWCA)
Emily Waters – Project Manager (SWCA)
Annie Ng – Assistant Project Manager (SWCA)
Charlotte Garris – Project Coordinator (SWCA)

PACIFICORP | Pacific Power | Rocky Mountain Power

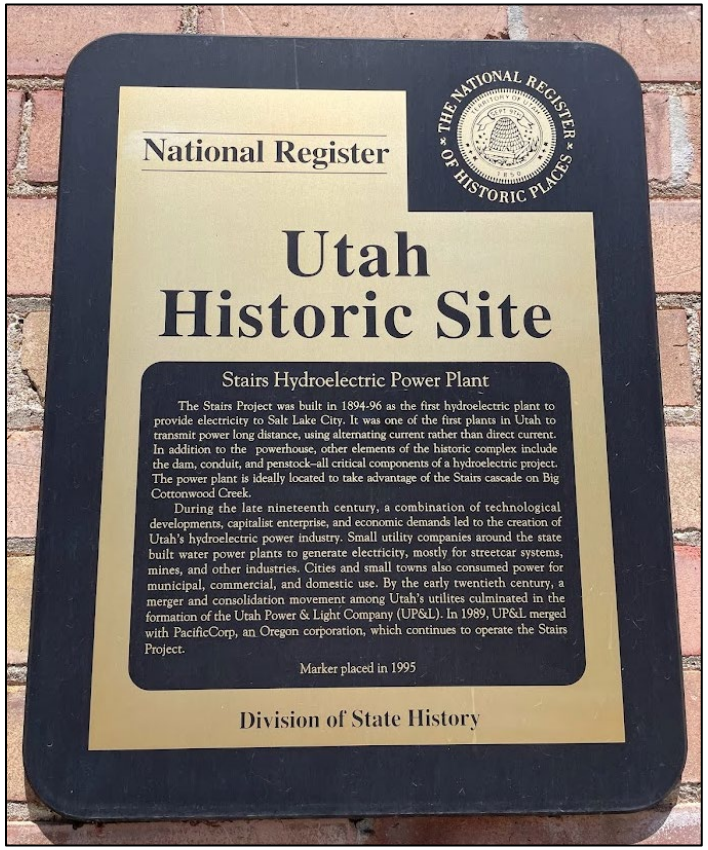
SWCA® ENVIRONMENTAL CONSULTANTS

Agenda

- Stairs Project and Licensing Overview
- Conduit Exemption Summary
- PacifiCorp's Proposed Action
- Three-Stage Consultation Process
- Tentative Schedule
- Questions and Discussion

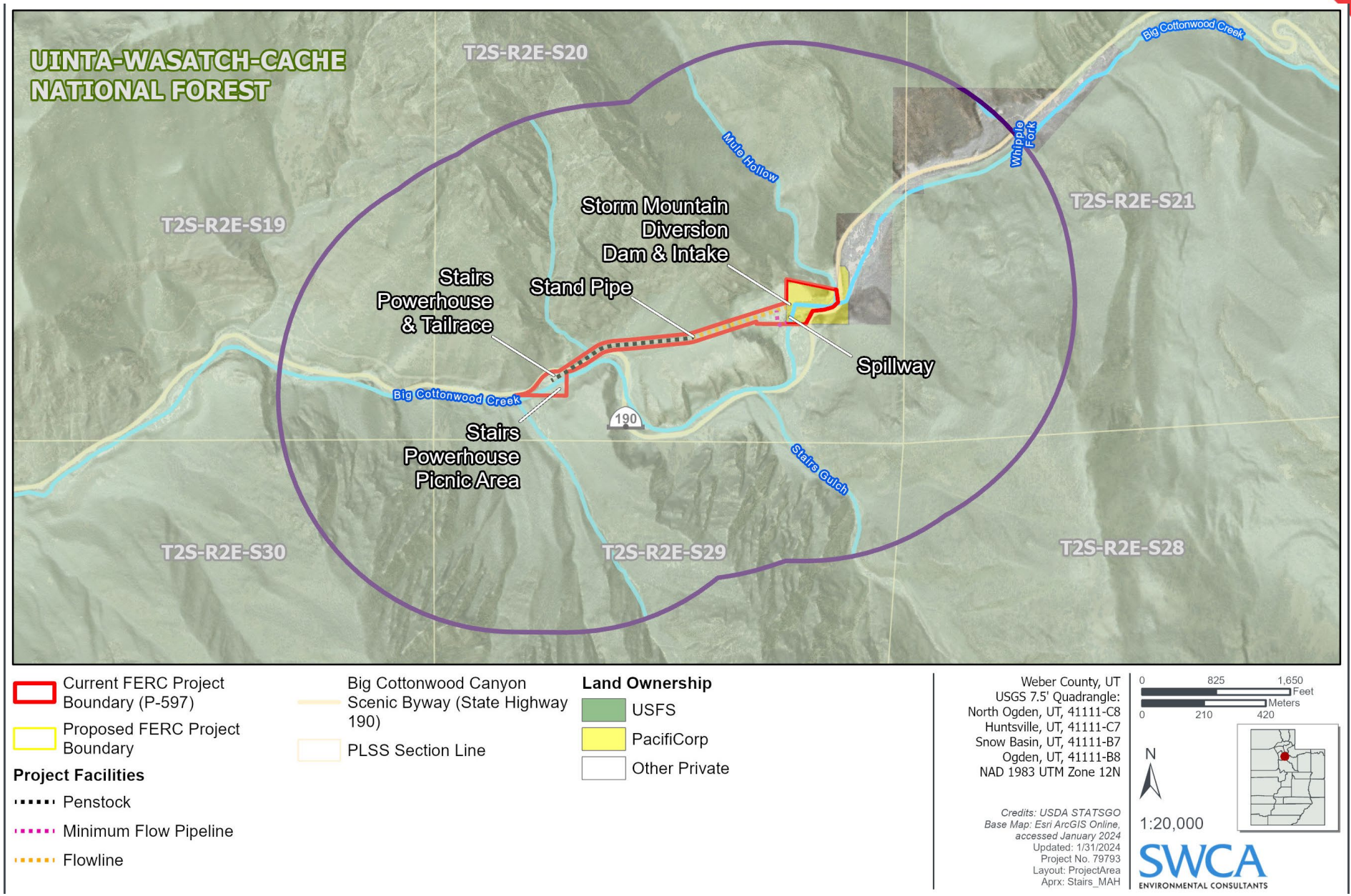
Stairs Hydroelectric Project Overview

- 1,200 kW hydroelectric project with Project infrastructure located up Big Cottonwood Canyon in Salt Lake County, Utah. Located directly upstream of PacifiCorp's Granite Hydroelectric Plant (Stairs' sister-station).
- Current License issued September 30, 1999, with an effective date of July 1, 2000. The current license expiration date is June 30, 2030. Relicensing must start no later than June 2025.
- Major Project Features:
  - Storm Mountain Dam and intake
  - Penstock
  - Powerhouse with turbine- generator unit
  - Tailrace canal: *flow consumed by Granite Project's intake.*



Stairs Project Location & Components

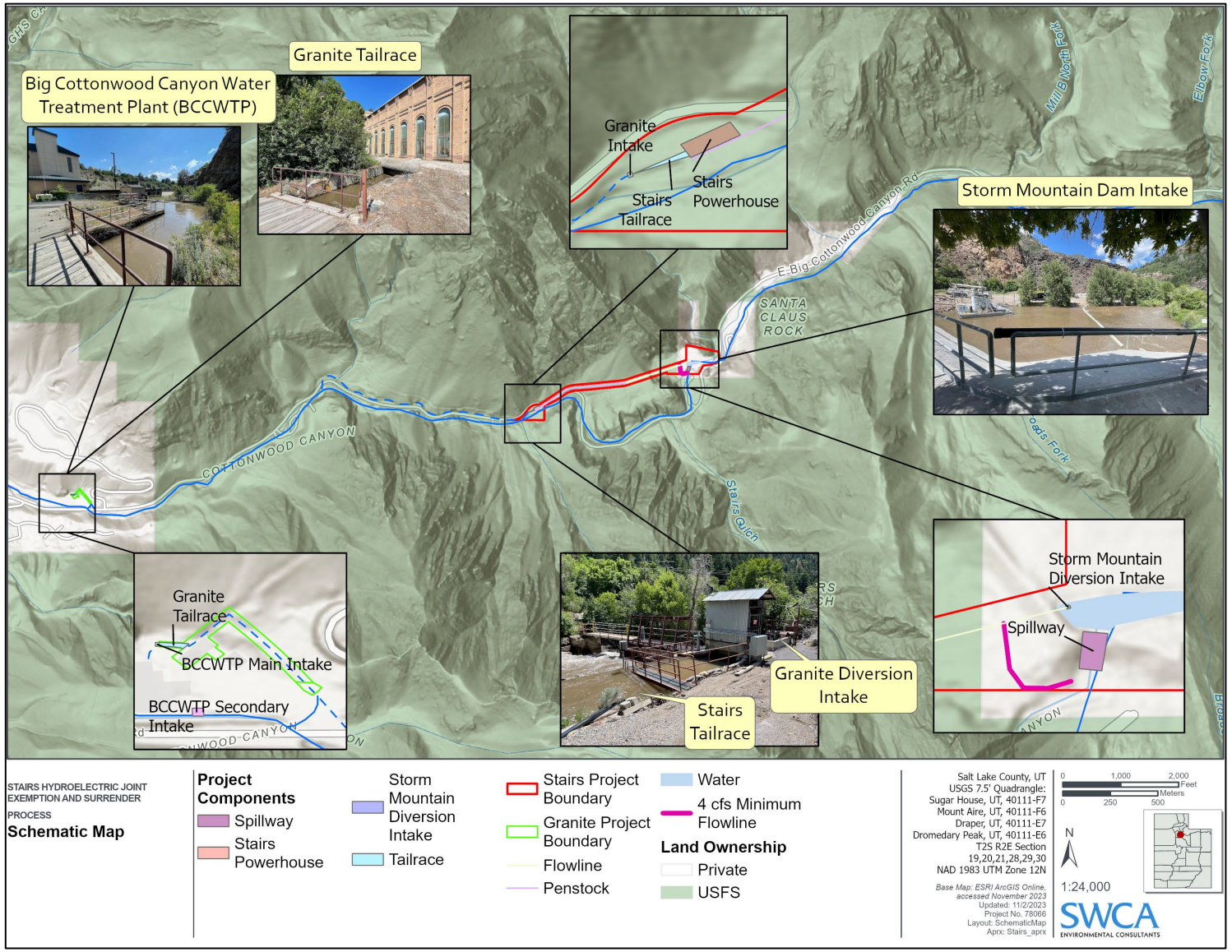
Approximately 2 miles upstream (east) of the mouth of Big Cottonwood Canyon

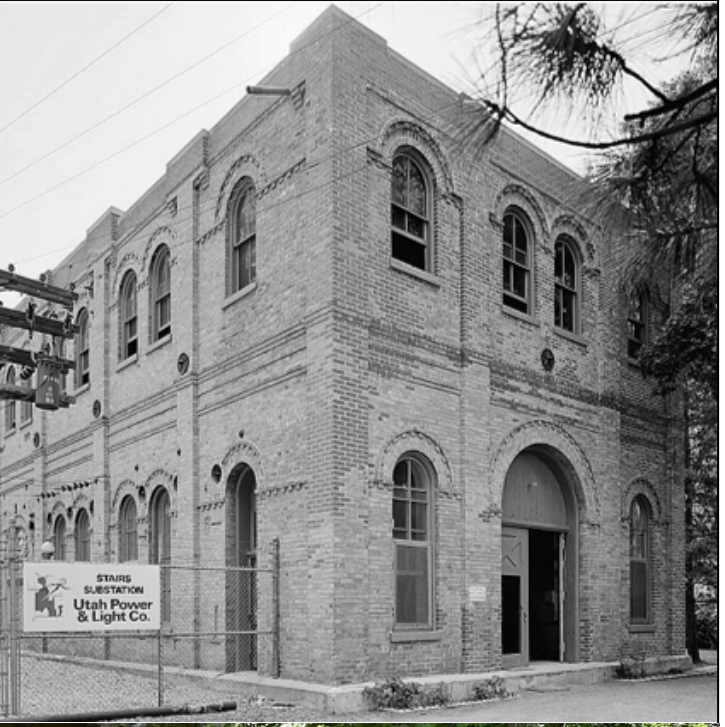


Stairs Schematic Map

Water conveyance from:

- Stairs Project Facilities into
- Granite Project Facilities into
- BCWTP Facilities for the purpose of municipal water use





Stairs Project & Granite Project, and Big Cottonwood Water Treatment Plant

- Stairs Project was originally constructed in 1896 and was the first hydroelectric power station to supply power to Salt Lake City with AC electricity for long-distance power transmission

Coordination with other facilities down canyon:

- Water taken from Cottonwood Creek at Stairs' Storm Mountain Dam goes through Stairs Project powerhouse and then leaves the Project through Stairs' tailrace directly to Granite Project's intake.
- The water from Stairs' Project tailrace goes through Granite Project's facilities and discharges its water directly into the Big Cottonwood Water Treatment Plant's (BCWTP) intake.
  - Water that goes through BCWTP facilities are used for the purpose of Salt Lake City's municipal water use.

FERC Conduit Exemption

- **Currently, the Project has a 30-year Minor Project License (less than 5MW).**
- **18 CFR 4.90**: “small conduit hydroelectric facility” may be exempt from licensing requirements
- **Title 18 CFR § 4.30:** Qualifying Conduit Hydropower Facility
  - Applies when a facility, not including any dam or impoundment, that is not required to be licensed under Part I of the FPA because it is determined to meet the following criteria:

✓ Generates electric power using only the hydroelectric potential of a non-federally owned conduit;

✓ Has an installed capacity that does not exceed 40 megawatts (MW); and,

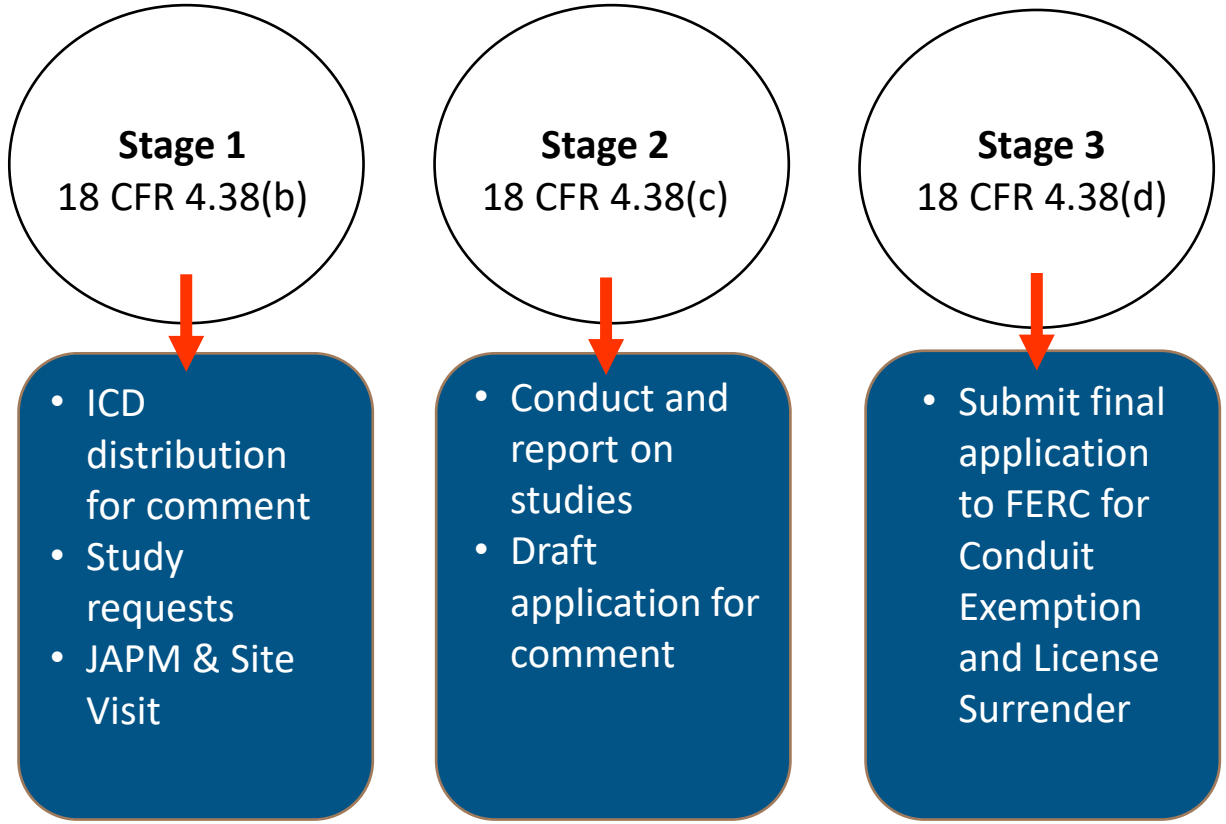
✓ Was not licensed or exempted from the licensing requirements of Part I of the FPA on or before August 9, 2013.

Proposed Action

- PacifiCorp proposes to convert the Project to the more appropriate conduit exemption. Once granted (corresponding actions), surrender the current FERC project license.
- PacifiCorp believes that the Stairs Project meets the Federal Power Act definitions of a conduit; therefore, in lieu of initiating relicensing pursuant to 18 CFR 4.5 and 5.1.
- Should FERC not grant the exemption, PacifiCorp would convert the ICD developed as part of the three-stage consultation to a pre-application document required pursuant to relicensing regulations at 18 CFR 4.6 and 5.1

Granite Project's tailrace, which leads directly to the Big Cottonwood Water Treatment Plant

Three Stage Consultation Process (18 CFR § 4.38)



Three-stage consultation involves:

- reaching out to relevant agencies, Tribes, and other interested parties
- holding a public meeting
- conducting study planning and reporting study results (if needed)
- providing a **draft ICD and application** for review

The Proposed Action would be largely administrative. There would be **no construction of new facilities or changes to existing facilities, ownership, or operations and maintenance activities**; therefore, PacifiCorp is neither proposing nor anticipating requests for studies at this time.

License Exemption Process: Tentative Schedule

Responsible Entity	Milestone	Estimated Milestone Date
	Pre-Consultation Activities- Prior to Exemption Application Submittal	
PacifiCorp	Identify data gaps and develop list of preliminary studies	Fall 2023
PacifiCorp	Conduct preliminary studies	N/A
	Stage 1 Consultation § 4.38(b)	
PacifiCorp	File and distribute Initial Consultation Document (ICD) and proposed studies for **comment** and **requesting** additional study requests, if applicable Request designation as FERC's non-federal representative for informal consultation pursuant to Section 106 of the National Historic Preservation Act and Section 7 of the Endangered Species Act	February 2024
PacifiCorp	Provide notification of joint agency and public meeting (JAPM) meeting location and timing	March 2024
FERC	FERC issues notice of approval of non-federal representative designation for informal consultation	March 2024
PacifiCorp/Interested Parties	JAPM and site visit	April 2024
FERC/Interested Parties	*Comments Due*: Initial Consultation Document *Deadline*: Proposed Study Requests	April-May 2024
	Stage 2 Consultation § 4.38(c)	
PacifiCorp	Propose to waive Stage 2 Consultation due to no resource impacts	February 2024
	Stage 3 Consultation § 4.38(d)	
PacifiCorp	Submit final Application for License Exemption and License Surrender	Summer 2024
FERC	FERC issues an order exempting the license and license surrender (subject to change)	TBD


Questions and Discussion

Thank you for attending! Please stay tuned for the meeting summary notes with our request for support in the Exemption process, and the publishing of the Stairs ICD in February and future correspondence on our upcoming JAPM!

You can email questions or comments to PacifiCorp: Eve.Davies@pacificorp.com

Stay tuned for a Project website coming soon!

Stairs Hydroelectric Project Preliminary Meeting Notes – January 31, 2024

PRELIMINARY MEETING (VIRTUAL) FOR CONDUIT EXEMPTION APPLICATION
STAIRS HYDROELECTRIC PROJECT
(FERC PROJECT NO. 597)
MEETING SUMMARY: JANUARY 31, 2024, 1:00 PM MT

MEETING PARTICIPANTS

NAME	TITLE	ORGANIZATION
Eve Davies	Principal Scientist/License Manager	PacifiCorp
Scott Catton	Project Manager; Weber River Watershed and General Wasatch Area	Trout Unlimited
Sandy Wingert		Utah Division of Water Quality
Charles Rosier	Lands and Special Uses Program Manager for Uinta-Wasatch Region	USFS
Tamara Prue	Water Resource Manager, Conservation and Hydrology Group	SLC Department of Public Utilities
Mike Slater	Central Region Aquatics Program Manager	Utah Division of Wildlife Resources
Teresa Gray	Water Quality Treatment Administrator	SLC Department of Public Utilities
Pete Gomben	Interregional Hydropower Program Manager	USFS
Michelle Barry	Program Manager at the BCWTP	SLC Department of Public Utilities
Nuria Holmes	SWCA FERC Technical Advisor	SWCA Environmental Consultants
Emily Waters	SWCA Project Manager	SWCA Environmental Consultants
Annie Ng	SWCA Assistant Project Manager	SWCA Environmental Consultants

MEETING PRESENTATION

Introduction

- Introduction of PacifiCorp, SWCA Consultants, and attendees.
- Overview of the meeting purpose and meeting agenda.

Stairs Project and Licensing Overview

- PacifiCorp gave the attendees an overview of the Project including the Project history, licensing history, major Project features, the Project Boundary, and land ownership overlap between PacifiCorp and Forest Service.
- The Stairs Project location and key Project components were shown on the Project map.
- PacifiCorp gave context about the upcoming relicensing deadlines. They explained the Stairs relicensing process and timelines, noting that PacifiCorp is required to start relicensing no later than June 2025, as the license expires in June 30, 2030.

Stairs Project, Granite Project, and Big Cottonwood Water Treatment Plant

- PacifiCorp walked the attendees through a schematic map to give context for the conduit exemption "beads on a string" logic, given the nexus with the downstream Granite project, which is regulated by FERC as a conduit exemption. The water that is diverted at Storm Mountain dam goes through the Stairs Project directly into Granite Project, and from Granite Project water goes directly into the Big Cottonwood Water Treatment Plant (BCWTP).
    - Also discussed how water that goes through the Stairs Project ends up at BCWTP for the purpose of city water consumption.
- PacifiCorp and SWCA explained that conduit exemption regulations were substantively changed in 2013, and consequently, this option was not available for the Stairs Project when it last went through relicensing (1999). PacifiCorp explained how the Stairs Project operates as a conduit and is more appropriately classified as a conduit exemption.
- PacifiCorp explained how the Granite Project (P-14293), Stairs' sister Project, is a conduit exempted facility and is just downstream of the Stairs Project.

Definition of Conduit Exemption

- PacifiCorp described FERC's role in relicensing and exemptions.
- PacifiCorp described what a conduit exemption is and why Stairs would qualify as this, rather than going through a traditional relicensing. They noted that a conduit exemption is a different form of a license. The conduit exemption process can be simpler and less resource- and time-intensive than relicensing.
- PacifiCorp explained that the conduit exemption is an administrative change based on where the water typically goes and how the water is used after it leaves the Stairs Project. In this case, the water leaves the Project with the eventual purpose of municipal water use.

Proposed Action

- PacifiCorp described the logistics of the administrative action, explaining that a conduit exemption would not change the operations, maintenance, or facilities of the Project.
- PacifiCorp's intention is to submit an application for the Project conduit exemption and concurrent license surrender, should FERC approve of the Proposed Action presented in the initial consultation document (ICD). If FERC finds that the Stairs Project does not qualify for a conduit exemption, PacifiCorp will convert the information from the ICD into a pre-application document and start the relicensing process.

Three Stage Consultation & Proposed Schedule

- PacifiCorp notified the attendees about the upcoming filing of the ICD, the joint agency public meeting, and the joint application. PacifiCorp is optimistic that the Proposed Action could take just over a year, and could prevent the need for the five-year relicensing process.
- PacifiCorp described how the Proposed Action and application is an administrative action and no changes will be made to the Project, therefore they are proposing to FERC to waive studies, unless agencies or other interested parties request specific studies.
- PacifiCorp requests attendees send an email of support to Eve if they support this Proposed Action. They request support because PacifiCorp wants to show FERC that interested parties support the conduit exemption and preliminary consultation occurred.

QUESTIONS AND DISCUSSION

What happens to streamflow if the Stairs or Granite Projects are offline?

- If PacifiCorp facilities are offline, the water can still travel through the pipes down to BCWTP. Additionally, BCWTP has an additional intake off Big Cottonwood Creek that they can use if Granite Project is not operational.
- If Granite Project is offline, PacifiCorp explained that the water leaving Stairs' powerhouse through the tailrace would go back into the creek at the Granite diversion dam instead of into Granite Project's intake. If Stairs and Granite were offline, the water would not be diverted at the Storm Mountain dam.
- In rare cases, if BCWTP is offline, then the water leaving Granite Project's tailrace would be diverted back into the creek.

How much water is required to be put back into Big Cottonwood Creek?

The current license requirement is for a 4cfs minimum instream flow, which is released to the stream at the Stairs/Storm Mountain diversion dam. When water goes into the intake at the Storm Mountain dam, 4 cfs is released back into the creek at the bottom of the Storm Mountain spillway. **Once the license is surrendered, how will FERC's Forest Service requirements be impacted?**

- The Stairs Project currently has annual consultation requirements with the Forest Service. If a conduit exemption and license surrender is granted, PacifiCorp would continue with special use authorizations and/or Forest Service consultation. In addition, PacifiCorp plans to maintain the 4 cfs minimum flow and develop and formalize a historic properties management plan (HPMP).

How would a FERC license vs. a conduit exemption impact potential changes occurring at BCWTP? For example, if Salt Lake Public Utilities wanted to direct flows from penstock to a different water treatment plant, how would the processes be different?

- PacifiCorp explained that FERC's requirements for different changes can be more complex and time-consuming. For any changes to the Stairs Project within the FERC Project Boundary, PacifiCorp is required to consult and receive prior approval from FERC. Under a conduit exemption, the conduit itself could be removed from the Project Boundary, eliminating that portion of the Project from FERC jurisdiction. The Stairs Project would still be subject to FERC's dam safety requirements, and they would overlap with the State of Utah's dam safety requirements.

Notes:

- Mike requested Chris Crockett (chriscrockett@utah.gov) be added to contact list.

Meeting adjourned at 2:00 PM MT

Agency/Interested Party Letters of Support

Utah Department of Natural Resources - Division of Wildlife Resources

From: Michael Slater
To: Emily Waters
Cc: Chris Crockett; Keith Lawrence
Subject: Re: Stairs Hydroelectric Project Conduit Exemption Preliminary Meeting: Follow-Up
Date: Wednesday, February 14, 2024 2:00:54 PM
Attachments: image001.png

Hello Emily,
Thank you for the meeting summary and proposal. Sorry I did not see this email earlier. I hope this written support on behalf of Utah Division of Wildlife Resources for the Stairs conduit exemption and license surrender. We recognize this doesn't really change the status of how things are operated there in Big Cottonwood Canyon and the Stairs plant just simply streamlining the licensing process. Thanks for including us.
On one other note please note the change in my position with UDWR listed below.
Thanks, Mike

Photo

Mike Slater
Central Region Sportfish Project Leader

M: (801) 367-5941
E: michaelslater@utah.gov

Utah Department of Natural Resources
Division of Wildlife Resources
wildlife.utah.gov

On Thu, Feb 8, 2024 at 12:06 PM Emily Waters <emily.waters@swca.com> wrote:

> Good afternoon,
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> On behalf of Eve and myself, thank you again to those that were able to join us last week to informally discuss PacifiCorp's proposal to apply with FERC for the conversion of the Stairs Project to the more appropriate, conduit exemption classification and correspondingly surrender the current FERC license once a conduit exemption has been granted. As discussed on the call, the formal consultation process will begin with the public distribution of an Initial Consultation Document (ICD) – currently planned for mid-February – that describes the current Project and the proposed action, followed by a formal review/comment period and joint agency meeting and site visit. You will be cc'd on the FERC filing when it is made, and we would be happy to further address any specific comments or question you may have regarding that filing and subsequent comment deadlines.
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Thank you-

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