



Electric Division
1065 Fair Street
Ketchikan, AK 99901

Phone (907) 225-5505
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July 16, 2019

VIA E-FILING

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

Beaver Falls Hydroelectric Project (FERC No. 1922)
Filing of Notice of Intent and Pre-Application Document

Dear Secretary Bose:

The City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities (KPU) is the licensee for the Beaver Falls Hydroelectric Project, FERC No. 1922 (Project), located on Beaver Falls Creek near the City of Ketchikan, Ketchikan Gateway Borough, Alaska. KPU hereby electronically files with the Federal Energy Regulatory Commission (FERC or Commission) the Notice of Intent to File a License Application (NOI) and accompanying Pre-Application Document (PAD) for the Project. These documents are being filed pursuant to 18 Code of Federal Regulations (C.F.R.) § 5.5 and § 5.6 of the Commission's regulations and are being simultaneously distributed to agencies and stakeholders listed in the Distribution List as referenced in the NOI and PAD.

We are also utilizing this cover letter and as identified in the NOI, to request: 1) designation as the non-federal representative under Section 7 of the Endangered Species Act and under Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act; 2) the authority to initiate consultation pursuant to Section 106 of the National Historic Preservation Act; and 3) use of the Traditional Licensing Process (TLP) for the Beaver Falls Project relicensing.

DOCUMENT DISTRIBUTION

In accordance with 18 CFR § 5.5 and § 16.8 of the Commission's regulations, we are transmitting this letter and the referenced attachments (excluding Attachment E of the PAD containing Critical Energy Infrastructure Information (CEII) and filed under separate cover with the FERC) to relevant and known resource agencies, Tribes, non-governmental organizations, and stakeholders that we believe may have an interest in the Project (see Distribution List included in NOI and PAD). All materials related to the current license as well as other materials related to this NOI and PAD are available for inspection at KPU's office located at 2930 Tongass Avenue, Ketchikan, Alaska 99901, by appointment, as well as on KPU's relicensing website <https://www.beaverfallsrelicensing.com/>. We have also published notice of this filing in the Ketchikan Daily News, a newspaper in general circulation in the Project area. Also, in

accordance with 18 CFR § 5.5, we are providing two courtesy copies of these documents to the FERC Office of Energy Projects (Room 61-02) and the FERC Office of General Counsel – Energy Projects (Room 101-56).

NON-FEDERAL REPRESENTATIVE

In accordance with 18 CFR § 5.5(e) and in order to identify potential issues earlier in the process so that they can be addressed prior to filing of the license application with the Commission, KPU hereby requests that the Commission designate KPU as a non-federal representative under Section 7 of the Endangered Species Act and the joint regulation under 50 C.F.R. § 402 to undertake formal consultation with applicable federal and state agencies regarding federally threatened and endangered species that may be impacted by the Project.

CONSULTATION AUTHORITY

KPU requests that it be granted authority to initiate consultation with the Alaska State Historic Preservation Officer (SHPO), appropriate federally-recognized Tribes, and other consulting parties pursuant to 36 CFR § 800.2(c)(4) of the regulations implementing Section 106 of the National Historic Preservation Act.

REQUEST TO UTILIZE THE TRADITIONAL LICENSING PROCESS

KPU informally consulted with the Alaska Department of Natural Resources (ADNR), Alaska SHPO, National Oceanic and Atmospheric Administration (NOAA) Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), Alaska Department of Fish & Game (ADFG), Alaska Department of Environmental Conservation (ADEC), and the U.S. Forest Service (USFS) while preparing the Beaver Falls Project PAD and NOI. KPU hosted an initial resource agency meeting on April 10, 2019 to provide a background of the Beaver Falls Project and of the upcoming FERC relicensing process. On May 21, 2019 KPU hosted an informal site visit open to all interested agency personnel. The site visit was attended by USFS representatives. In addition, the ADNR, Alaska SHPO, NOAA, USFWS, ADFG, and ADEC provided KPU with emails supporting KPU's decision to utilize the TLP, as recommended by FERC, for the Beaver Falls Project relicensing (see Attachment A).

The following sections outline how use of the TLP will: a) comply with the criteria outlined in 18 C.F.R. § 5.3 (C)(1)(ii)(A-F); b) benefit the participants to the process; and c) provide FERC with the information it needs to complete its licensing obligations.

- ***(A) Likelihood of On-Time License Issuance / No Changes Proposed to the Project or Operations***

KPU is not proposing to change the Project's existing mode of operation or change existing Project facilities that have provided a reliable source of energy for local customers.

Additionally, resource agencies involved in the relicensing process have a baseline knowledge of the Project because of KPU's informal consultation efforts leading up to filing of this NOI and PAD (Initial Stakeholder Meeting held on April 10, 2019; May 21,

2019 informal site visit). Due to these preemptive communications, the fact that there are limited resource issues identified around the Project area, and the fact that no changes are proposed, it is likely that the new license will be issued on time.

- ***(B) Complexity of the Resource Issues***

KPU proposes no changes to the Beaver Falls Project facilities or operations. Given there are no proposed changes and that there are no identified endangered species within the Project area, initial consultation with resource agencies identified minimal issues related to Project relicensing. Because the Beaver Falls Project underwent relicensing in the 1990s and has not changed since that timeframe, many of the previously implemented studies and project mitigation and enhancement measures are still applicable to the Beaver Falls Project today.

- ***(C) Level of Anticipated Controversy***

As noted above, KPU has conducted informal consultation with resource agencies leading up to the filing of this NOI and PAD. Initial consultation with agencies has not identified any controversial issues with the Beaver Falls relicensing effort, especially since there are no proposed changes to Project facilities or operations.

KPU anticipates collaborative relationships with resource agencies and stakeholders throughout the relicensing process. KPU currently meets with the USFS annually regarding coordination of recreation facilities maintenance and anticipates that this working relationship will be carried on through the relicensing process.

- ***(D) Relative Cost of the Traditional Licensing Process Compared to the Integrated Licensing Process***

Given initial resource agency feedback that limited resource issues are anticipated with Project relicensing, KPU believes that under the TLP it will be able to complete Project relicensing at less cost and in less time than that required by the Integrated Licensing Process (ILP). The flexible nature and timelines of the TLP would additionally allow KPU to work cooperatively with resource agencies and stakeholders to develop information necessary to resolve any issues that may arise. This flexibility is anticipated to aid consensus-building and therefore reduce relicensing timelines and costs.

- ***(E) The Amount of Available Information and Potential for Significant Disputes Over Studies***

As indicated in the attached PAD, the 2016 Tongass National Forest Land and Resource Management Plan provides baseline environmental data for the Project area. KPU's prior relicensing effort conducted in the 1990s also provides baseline information on the Project area, as described in the PAD.

KPU will work with the resource agencies and stakeholders on data collection efforts to address resource concerns associated with the Project. Should a significant dispute arise during the process, KPU would initiate FERC's dispute resolution process outlined in 18 CFR § 16.8(b)(6)(i).

- **(F) Other Factors**

KPU informally consulted with multiple resource agencies regarding use of the TLP. The ADNR, SHPO, NOAA, USFWS, ADFG, and the ADEC all expressed support of KPU use of the TLP in emails dated April 2019. Agency emails expressing support of KPU's use of the TLP are attached to this cover letter.

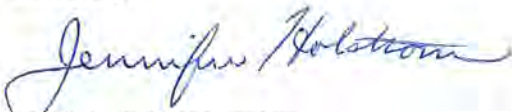
In addition, KPU has published notice of intent to use the TLP in the July 13, 2019 edition of the Ketchikan Daily News, the newspaper having local distribution (see Attachment B for tearproof). That notice requests that any comments in response to this request be filed with the Commission within 30 days of KPU's filing of NOI and PAD.

By copy of this letter, KPU also requests that agencies and interested parties to which the request has been distributed (see attached distribution list) provide comments on the request to the Commission within 30 days, by August 15, 2019. Please note that comments on the PAD and study request will then be required after KPU's Scoping Meeting later this year, pending FERC approval of the TLP.

KPU hereby respectfully requests that the Commission notice the filing of KPU's NOI, approve the filing of its PAD, grant non-federal representative status and consultation authority to KPU, and grant the request to use the TLP.

Should you have any questions or comments related to the NOI, PAD, or any other information presented above, please contact me at jenniferh@ktn-ak.us or at 907-228-4733.

Sincerely,



Jennifer Holstrom, P.E.
Senior Project Engineer
Ketchikan Public Utilities

cc: Distribution List
Andrew Donato, KPU
Finlay Anderson, Kleinschmidt
Katie Sellers, Kleinschmidt

Enclosed:

Attachment A Agency Support of the TLP
Attachment B Ketchikan Daily News Tearproof
Attachment C Notice of Intent to Relicense the Beaver Falls Project (FERC No. 1922)
Attachment D Pre-Application Document for the Beaver Falls Project (FERC No. 1922)

ATTACHMENT A

AGENCY SUPPORT OF THE TLP

From: [Reese, Carl D \(DNR\)](#)
To: [Katie Sellers](#); [Hyde, Jon M -FS](#); susan.walker@noaa.gov; [Keith, Kevin D \(DFG\)](#); mdinsmore@fs.fed.us; [Meitl, Sarah J \(DNR\)](#); [Foley, Kevin](#); [Rypkema, James \(DEC\)](#); ctighe@fs.fed.us; sean.eagan@noaa.gov; [Jennifer Holstrom](#); [Andrew Donato](#); [Finlay Anderson](#); [Jeff Deason](#); [Pratt, Jeremy](#); [Kroll, Ian](#); [Minnillo, Mark J \(DFG\)](#)
Subject: RE: Beaver Falls Meeting Follow-up
Date: Thursday, April 18, 2019 4:55:11 PM

Katie, The Alaska Dept of Natural Resources does not have any concerns with KPU using the TLP for Beaver Falls.

Carl Reese
Statewide Hydroelectric Specialist
Department of Natural Resources
Division of Mining, Land, & Water
Water Resource Section, Water Management Unit
P.O. Box 111020
Juneau, AK 99811
(907) 465-2533

From: Katie Sellers <Katie.Sellers@KleinschmidtGroup.com>
Sent: Thursday, April 18, 2019 11:57 AM
To: Hyde, Jon M -FS <jmhyde@fs.fed.us>; susan.walker@noaa.gov; Reese, Carl D (DNR) <carl.reese@alaska.gov>; Keith, Kevin D (DFG) <kevin.keith@alaska.gov>; mdinsmore@fs.fed.us; Meitl, Sarah J (DNR) <sarah.meitl@alaska.gov>; Foley, Kevin <kevin_foley@fws.gov>; Rypkema, James (DEC) <james.rypkema@alaska.gov>; ctighe@fs.fed.us; sean.eagan@noaa.gov; Jennifer Holstrom <JenniferH@City.Ketchikan.Ak.Us>; Andrew Donato <AndrewD@City.Ketchikan.Ak.Us>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Jeff Deason <Jeff.Deason@kleinschmidtgroup.com>; Pratt, Jeremy <JPratt@trcsolutions.com>; Kroll, Ian <IKroll@trcsolutions.com>; Minnillo, Mark J (DFG) <mark.minnillo@alaska.gov>
Subject: RE: Beaver Falls Meeting Follow-up

Hi All –

As an update from last week's meeting, we received a call from FERC asking about KPU's intent to use the Integrated Licensing Process (ILP) for the Beaver Falls relicensing. Although KPU has told FERC that they are interested in the default Integrated Licensing Process (ILP), FERC is recommending that KPU utilize the Traditional Licensing Process (TLP). Part of FERC's desire is a budgetary consideration – they are concerned they might not have the resources to adequately support the ILP process in Alaska.

Though the processes are different, they will involve the same level of consultation with resource agencies and stakeholders for the project's relicensing. Timelines and meeting dates (or even number of meetings) will just be a little more flexible for the TLP. FERC involvement in the process is less upfront for TLP, but then becomes heavier once the Final License Application is submitted for

processing. TLP often works well for smaller projects with limited resource issues.

That said, we wanted to check in with this group, especially now that everyone is somewhat familiar with the project, to see if KPU would have agency support to move forward with electing the TLP or if there are any objections to utilizing the TLP? If you could please let us know your thoughts by **next Wednesday**, it would be much appreciated.

On another note, we have set the optional Beaver Falls site visit date for **Tuesday May 21, 2019**. If you would like to join, please let me know. Otherwise, a formal relicensing (ILP or TLP) site visit will occur later this summer/early this fall.

Thank you! Katie

Katie E. Sellers, M.S.

Regulatory Coordinator

Kleinschmidt

Office: 207-416-1218

www.KleinschmidtGroup.com

*Providing **practical** solutions for **complex** problems affecting energy, water, and the environment*

From: Katie Sellers

Sent: Friday, April 12, 2019 2:29 PM

To: Hyde, Jon M -FS <jmhyde@fs.fed.us>; susan.walker@noaa.gov; carl.reese@alaska.gov; kevin.keith@alaska.gov; mdinsmore@fs.fed.us; sarah.meitl@alaska.gov; Foley, Kevin <kevin_foley@fws.gov>; Jim.Rypkema@alaska.gov; ctighe@fs.fed.us; sean.eagan@noaa.gov; Jennifer Holstrom <JenniferH@City.Ketchikan.Ak.Us>; Andrew Donato <AndrewD@City.Ketchikan.Ak.Us>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Jeff Deason <Jeff.Deason@KleinschmidtGroup.com>; Pratt, Jeremy <JPratt@trcsolutions.com>; Kroll, Ian <IKroll@trcsolutions.com>

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All – Thank you again for joining our call on Wednesday to informally kick off the upcoming Beaver Falls relicensing effort.

As noted on the call, KPU will host an informal site visit in mid-May. This site visit will be held for both the Pre-Application Document (PAD) technical leads and for any agency staff that are interested in joining. If you would like to join, please use the Doodle Poll link provided below to let us know your availability. We will choose a site visit date that works best for the majority of participants.

This is an informal site visit before issuance of the PAD. A formal site visit/facility tour will be available in the September timeframe during the FERC scoping meeting. Additionally, as Jennie noted during our call, KPU would be happy to provide a tour of the project separately if you will be in the Ketchikan area at another time.

A link to the Beaver Falls relicensing website is also included below. We will be uploading public documents to this website and maintaining an updated project schedule here throughout the relicensing process.

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Best! Katie

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From: [Susan Walker - NOAA Federal](#)
To: [Katie Sellers](#)
Cc: [Hyde, Jon M -FS](#); carl.reese@alaska.gov; kevin.keith@alaska.gov; mdinsmore@fs.fed.us; sarah.meitl@alaska.gov; [Foley, Kevin](#); Jim.Rypkema@alaska.gov; ctighe@fs.fed.us; sean.eagan@noaa.gov; [Jennifer Holstrom](#); [Andrew Donato](#); [Finlay Anderson](#); [Jeff Deason](#); [Pratt, Jeremy](#); [Kroll, Ian](#); mark.minnillo@alaska.gov
Subject: Re: Beaver Falls Meeting Follow-up
Date: Friday, April 19, 2019 8:03:53 PM

Hi Katie -

NMFS has no objection to using the TLP for relicensing Beaver Falls, and as previously reported NMFS does not expect to be very involved in the process given limited effects to trust resources, but will decide after reviewing the PAD and will notify KPU.

Thanks -

Sue Walker
Fish Biologist, NMFS Hydropower Coordinator
Alaska Region

P.O. Box 21668
709 W. 9th Street
Juneau, Alaska 99802-1668

907-586-7646
FAX: 907- 586-7358

----- Forwarded message -----

From: **Katie Sellers** <Katie.Sellers@kleinschmidtgroup.com>
Date: Thu, Apr 18, 2019 at 11:57 AM
Subject: RE: Beaver Falls Meeting Follow-up
To: [Hyde, Jon M -FS](#) <jmhyde@fs.fed.us>, susan.walker@noaa.gov <susan.walker@noaa.gov>, carl.reese@alaska.gov <carl.reese@alaska.gov>, kevin.keith@alaska.gov <kevin.keith@alaska.gov>, mdinsmore@fs.fed.us <mdinsmore@fs.fed.us>, sarah.meitl@alaska.gov <sarah.meitl@alaska.gov>, [Foley, Kevin](#) <kevin_foley@fws.gov>, Jim.Rypkema@alaska.gov <Jim.Rypkema@alaska.gov>, ctighe@fs.fed.us <ctighe@fs.fed.us>, sean.eagan@noaa.gov <sean.eagan@noaa.gov>, [Jennifer Holstrom](#) <JenniferH@city.ketchikan.ak.us>, [Andrew Donato](#) <AndrewD@city.ketchikan.ak.us>, [Finlay Anderson](#) <finlay.anderson@kleinschmidtgroup.com>, [Jeff Deason](#) <Jeff.Deason@kleinschmidtgroup.com>, [Pratt, Jeremy](#) <JPratt@trcsolutions.com>, [Kroll, Ian](#) <IKroll@trcsolutions.com>, mark.minnillo@alaska.gov <mark.minnillo@alaska.gov>

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From: [Foley, Kevin](#)
To: [Katie Sellers](#)
Cc: [Hyde, Jon M.-FS](#); susan.walker@noaa.gov; carl.reese@alaska.gov; kevin.keith@alaska.gov; mdinsmore@fs.fed.us; sarah.meitl@alaska.gov; Jim.Rypkema@alaska.gov; ctighe@fs.fed.us; sean.eagan@noaa.gov; [Jennifer Holstrom](#); [Andrew Donato](#); [Finlay Anderson](#); [Jeff Deason](#); [Pratt, Jeremy](#); [Kroll, Ian](#); mark.minnillo@alaska.gov
Subject: Re: [EXTERNAL] RE: Beaver Falls Meeting Follow-up
Date: Friday, April 19, 2019 9:46:22 PM

Hello Katie, the U.S. Fish and Wildlife Service supports KPU to move forward with electing and use of the TLP for relicensing the Beaver Falls hydroelectric project.

Kevin M. Foley,
Fish and Wildlife Biologist
Ecological Services
Anchorage Fish and Wildlife Conservation Office
U.S. Fish and Wildlife Service
4700 BLM Rd
Anchorage, AK. 99507
Phone: (907) 271-2788
Fax: (907) 271-2786
Kevin_Foley@fws.gov

"All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts."

-Aldo Leopold.

On Thu, Apr 18, 2019 at 12:08 PM Katie Sellers <Katie.Sellers@kleinschmidtgroup.com> wrote:

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From: [Meitl, Sarah J \(DNR\)](#)
To: [Katie Sellers](#)
Subject: RE: Beaver Falls Meeting Follow-up
Date: Friday, April 19, 2019 5:21:58 PM

Hi Katie,

From OHA/SHPO perspective, we have no objections to using either process.

Best,

Sarah Meitl

Review and Compliance Coordinator

Alaska State Historic Preservation Office / Office of History and Archaeology
550 West 7th Avenue, Suite 1310
Anchorage, AK 99501-3510
sarah.meitl@alaska.gov
907-269-8720

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Thank you! Katie

Katie E. Sellers, M.S.
Regulatory Coordinator

Kleinschmidt

Office: 207-416-1218

www.KleinschmidtGroup.com

*Providing **practical** solutions for **complex** problems affecting energy, water, and the environment*

From: Katie Sellers

Sent: Friday, April 12, 2019 2:29 PM

To: Hyde, Jon M -FS <jmhyde@fs.fed.us>; susan.walker@noaa.gov; carl.reese@alaska.gov; kevin.keith@alaska.gov; mdinsmore@fs.fed.us; sarah.meitl@alaska.gov; Foley, Kevin <kevin_foley@fws.gov>; Jim.Rypkema@alaska.gov; ctighe@fs.fed.us; sean.eagan@noaa.gov; Jennifer Holstrom <JenniferH@City.Ketchikan.Ak.Us>; Andrew Donato <AndrewD@City.Ketchikan.Ak.Us>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Jeff Deason <Jeff.Deason@KleinschmidtGroup.com>; Pratt, Jeremy <JPratt@trcsolutions.com>; Kroll, Ian <IKroll@trcsolutions.com>

Subject: Beaver Falls Meeting Follow-up

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Relicensing Website: <https://www.beaverfallsrelicensing.com/>

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To: [Katie Sellers](#); [Hyde, Jon M -FS](#); susan.walker@noaa.gov; [Reese, Carl D \(DNR\)](#); mdinsmore@fs.fed.us; [Meitl, Sarah J \(DNR\)](#); [Foley, Kevin](#); [Rypkema, James \(DEC\)](#); ctighe@fs.fed.us; sean.eagan@noaa.gov; [Jennifer Holstrom](#); [Andrew Donato](#); [Finlay Anderson](#); [Jeff Deason](#); [Pratt, Jeremy](#); [Kroll, Ian](#); [Minnillo, Mark J \(DFG\)](#)
Subject: RE: Beaver Falls Meeting Follow-up
Date: Monday, April 22, 2019 12:29:14 PM

Katie-

Because there are no major resource concerns for the Beaver Falls project, ADF&G has no objections to using the TLP for the relicensing process.

-Kevin

Kevin D. Keith
FERC Hydropower Coordinator
Instream Flow Program
Alaska Department of Fish & Game

907-267-2836

From: Katie Sellers <Katie.Sellers@KleinschmidtGroup.com>
Sent: Thursday, April 18, 2019 11:57 AM
To: Hyde, Jon M -FS <jmhyde@fs.fed.us>; susan.walker@noaa.gov; Reese, Carl D (DNR) <carl.reese@alaska.gov>; Keith, Kevin D (DFG) <kevin.keith@alaska.gov>; mdinsmore@fs.fed.us; Meitl, Sarah J (DNR) <sarah.meitl@alaska.gov>; [Foley, Kevin <kevin_foley@fws.gov>](mailto:kevin_foley@fws.gov); Rypkema, James (DEC) <james.rypkema@alaska.gov>; ctighe@fs.fed.us; sean.eagan@noaa.gov; Jennifer Holstrom <JenniferH@City.Ketchikan.Ak.Us>; Andrew Donato <AndrewD@City.Ketchikan.Ak.Us>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Jeff Deason <Jeff.Deason@kleinschmidtgroup.com>; Pratt, Jeremy <JPratt@trcsolutions.com>; Kroll, Ian <IKroll@trcsolutions.com>; Minnillo, Mark J (DFG) <mark.minnillo@alaska.gov>
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From: [Rypkema, James \(DEC\)](#)
To: [Keith, Kevin D \(DFG\)](#); [Katie Sellers](#); [Hyde, Jon M -FS](#); susan.walker@noaa.gov; [Reese, Carl D \(DNR\)](#); mdinsmore@fs.fed.us; [Meitl, Sarah J \(DNR\)](#); [Foley, Kevin](#); ctighe@fs.fed.us; sean.eagan@noaa.gov; [Jennifer Holstrom](#); [Andrew Donato](#); [Finlay Anderson](#); [Jeff Deason](#); [Pratt, Jeremy](#); [Kroll, Ian](#); [Minnillo, Mark J \(DFG\)](#)
Subject: RE: Beaver Falls Meeting Follow-up
Date: Monday, April 22, 2019 1:11:57 PM

DEC –Division of Water has no objections.

Jim Rypkema
Program Manager, Storm Water & Wetlands
Wastewater Discharge Authorization Program
Div of Water, Alaska Dept of Environmental Conservation
555 Cordova St; Anchorage, AK 99501-2617
(907) 334-2288 direct; (907) 301-1836 cell
james.rypkema@alaska.gov
<http://dec.alaska.gov/water/wastewater/stormwater>
<http://dec.alaska.gov/water/wastewater/wetlands>

From: Keith, Kevin D (DFG)
Sent: Monday, April 22, 2019 8:29 AM
To: Katie Sellers <Katie.Sellers@KleinschmidtGroup.com>; Hyde, Jon M -FS <jmhyde@fs.fed.us>; susan.walker@noaa.gov; Reese, Carl D (DNR) <carl.reese@alaska.gov>; mdinsmore@fs.fed.us; Meitl, Sarah J (DNR) <sarah.meitl@alaska.gov>; Foley, Kevin <kevin_foley@fws.gov>; Rypkema, James (DEC) <james.rypkema@alaska.gov>; ctighe@fs.fed.us; sean.eagan@noaa.gov; Jennifer Holstrom <JenniferH@City.Ketchikan.Ak.Us>; Andrew Donato <AndrewD@City.Ketchikan.Ak.Us>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Jeff Deason <Jeff.Deason@kleinschmidtgroup.com>; Pratt, Jeremy <JPratt@trcsolutions.com>; Kroll, Ian <IKroll@trcsolutions.com>; Minnillo, Mark J (DFG) <mark.minnillo@alaska.gov>
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ATTACHMENT B

KETCHIKAN DAILY NEWS TEARPROOF

3040-Help Wanted

Ketchikan Gateway Borough Public Works is hiring Seasonal Parks Laborers. \$15/hr. + DOE - Perform a variety of unskilled and semi-skilled tasks in the maintenance and operation of the Borough's buildings, grounds, fields, open spaces and parks. Must have valid Alaska Driver's License and acceptable driving record. Pre-employment drug screening required. Information, job description or to apply:

www.kgbak.us/humanresources

KGB is EOE.

FREE! Items to give away or sell for \$100 or less. Price must be in ad. Up to 10 words, ad runs 4 days. One free ad per publication.

Ketchikan Indian Community is looking for highly motivated candidates for the following positions:

Administration
Tribal Administrator
Quality/Patient Safety Director
Health Administrator
Executive Administrative Assistant
System Administrator
Tribal Health Clinic Physician Assistant
Family Nurse Practitioner
Pharmacy Technician
Registered Nurse
Physician
Medical Director
Certified Medical Assistant
Wellness
Diabetes Nurse Educator
Life Style Coach 1
Social Services
Domestic Violence Program Coordinator
Behavioral Health
Substance Abuse Program Manager
Behavioral Health Clinician II
Behavioral Health Aide
Behavioral Health Director
Supervising Clinical Psychologist
Laboratory Manager
Maintenance Technician I

All applicants are required to pass a pre-employment drug test and background check. We welcome all qualified applicants.

KIC honors Native Preference in accordance with P.L. 93-638 and we encourage our Tribal Mem-

3040-Help Wanted

Public Works Utility Operator II \$27.36-\$30.90/hr. DOE, IBEW + benefits.

Works to maintain and operate the Borough's water and wastewater facilities. Level I Water Distribution, Level II Wastewater Treatment, Wastewater Collection, Water Treatment certifications desired; will consider partial certification + experience. Class B CDL required. Weekend, shift work as needed. Minimum age 21. Pre-employment drug screening. KGB is an EOE. For information or to apply:

www.kgbak.us/humanresources

Taxi and Tour Drivers Wanted

Put cash in your pocket every day. *
Call for details
907-617-5559



HAP Alaska - Yukon VAN driver positions FULL & PART time! PROUD TO HIRE LOCALLY!

• **EARN CRUISE BENEFITS & BONUSES!**
• Seeking friendly and outgoing people!
• Competitive wages and a fun work environment.
• Safe driving record and min age of 21 required.
• Retirees welcome!

Apply online at www.alaskatourjobs.com or call (907) 228-1706 for more information.

We are an Equal Opportunity Employer.

Wanted: Annual August Blueberry Fun Run Race Director(s) in-training. Will mentor and support as long as needed. Compensation: Priceless Text: Lori Ortiz 907-617-9136.

MOVING? Get your packing paper at the Ketchikan Daily News, only \$1.00 for a five-pound bundle. 501 Dock Street. 225-3157.

6010-Commercial Boats And Equipment

140 38" Ladner shrimp pots \$8400. 907-254-1161 leave message.

Retiring. F/V Tyne. Turn

7010-Motorcycles

750 Bonneville Triumph motor cycle. Good shape, low miles, asking \$6500. Leave message 247-3681.

8160-Household Furniture

Furniture for sale, fairly new. Couch paid \$1300. sell for \$800. Table, TV stand from Bernie's. Must move self. Marine View #304, 220-6152.

8480-Special Services

Dawn's Cottage Sewing Mens & ladies alterations. 907-220-7388

Water delivery. Call any time. Water Haulers 220-6574.

8520-Misc. For Sale

Live DUNGENESS CRAB, F/V Harmony, Steve Kinney, 247-2356.

9130-Invitation to Bid

The Ketchikan Gateway Borough is soliciting sealed Bids from qualified individuals, firms, or companies for:

2019 Gateway Recreation Center Drainage Improvements

To requests the IFB documents, contact Borough Procurement Officer, Amy Briggs at amymb@kgbak.us The Bid documents will also be posted on the Borough's website: <http://www.kgbak.us/bids.aspx> Bid Submission Deadline: 2:00 PM local time, July 16, 2019.

9140-Legals

Notice of Filing with the Federal Energy Regulatory Commission City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities Beaver Falls Hydroelectric Project FERC No. 1922

The City of Ketchikan d/b/a Ketchikan Public Utilities (KPU), as required by the Federal Energy Regulatory Commission (FERC or Commission), hereby gives notice of its intent to seek relicensing of the Beaver Falls Hydroelectric Project, FERC No. 1922 (Project). The Project is located on Beaver Falls

9140-Legals

Creek near the City of Ketchikan, Ketchikan Gateway Borough, Alaska. The Applicant's address is 2930 Tongass Avenue, Ketchikan, Alaska 99901; phone number is 907-228-4733.

On or about July 16, 2019, KPU will file with the FERC its Notice of Intent (NOI) to seek a new license, a Pre-Application Document (PAD), and a request for Authorization to Use the Traditional Licensing Process (TLP) under Part 4 of the Commission's Regulations for the Project. The NOI provides notice of KPU's intent to file a license application for the Project. The PAD summarizes relevant and available information regarding the Project's description and operation along with discussions of the potential operational effects on environmental and cultural resources.

KPU invites resource agencies, Indian tribes, and members of the public likely to be interested in the proceedings to participate in the licensing and to comment on this notice and related matters. The PAD and NOI and associated reference materials are available for inspection and reproduction online at <https://www.ferc.gov/docs-filing/elibrary.asp>. They are also available for inspection online at KPU's Project website <https://www.beaverfalls-relicensing.com/> or during regular business hours at the KPU's Office located at 2930 Tongass Avenue, Ketchikan, Alaska 9990.

KPU's request to use the TLP is based upon informal consultation with the Alaska Department of Natural Resources, Alaska State Historic Preservation Office, National Oceanic and Atmospheric Administration Marine Fisheries Service, U.S. Fish and Wildlife Service, Alaska Department of Fish & Game, Alaska Department of Environmental Conservation, and the U.S. Forest Service and a via a thorough desktop review of the site and surrounding resources. Because KPU is not requesting changes to Project operations or facilitates, no endangered species are lo-

9140-Legals

cated in the Project area, and environmental issues are generally known, it is not expected that this relicensing effort will be an extensive effort. KPU believes that granting the request to use the TLP will not infringe on the ability for agencies or the public to provide comments on the project, nor on KPU's ability to address such comments.

Comments on the request to use the TLP are due to the Commission no later than 30 days following the filing date of this request (ie: by August 15, 2019 if NOI and PAD are filed on July 16, 2019). All responses must reference the Beaver Falls FERC project number (FERC No. 1922). Comments should address, as appropriate to the circumstances of the request, the (A) likelihood of timely license issuance; (B) complexity of the resource issues; (C) level of anticipated controversy; (D) relative cost of the traditional licensing process compared to the integrated licensing process; (E) the amount of available information and potential for significant disputes over studies; and (F) other factors the commenter believes pertinent. Commenters must submit an electronic filing via FERC's website (<http://www.ferc.gov/docs-filing/feronline.asp>) pursuant to 18 CFR § 385.2003(c) or an original and eight copies of their comments to the Office of the Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Washington, DC 20426. Publish: July 13, 2019 No. 17224

Applicants Sought for National Forest Resource Advisory Committee

Candidates for membership are needed for the Ketchikan Resource Advisory Committee advising the Tongass National Forest under the anticipated reauthorized Secure Rural Schools and Community Self-Determination Act (Public Law 112-141). The committee is chartered by the U.S. Department of Agriculture under the Federal Advisory

9140-Leg

Committees of : resenting interests. provides for meml to recor for their Forest Se cies for resen th est group Category • Repres bor • Repre outdoor off-highw or comm activities • Repre: mineral terests • Repres cial timb • Hold permits v kan area Category • Natio environn tions • Regio recogniz organizat • Dispe activities • Archae torical in • Nation recogniz burro int Category • Hold S or their c • Hold elected o • Repres dian trib cent to tl • Are s teachers • Repre public-at Committ view ar mendati projects benefitt forest to Title II single ye can rec in the with an of \$300, Individu within t Metlaka plicator tional in obtained Richard: nator, penny.ri oy Nomina

ATTACHMENT C

**NOTICE OF INTENT TO RELICENSE THE BEAVER FALLS PROJECT
(FERC No. 1922)**

**BEFORE THE
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

**CITY OF KETCHIKAN, ALASKA
d/B/A KETCHIKAN PUBLIC UTILITIES**

PROJECT No. 1922

**NOTICE OF INTENT TO FILE AN APPLICATION FOR
NEW LICENSE FOR THE BEAVER FALLS HYDROELECTRIC PROJECT
(FERC No. 1922)**

July 16, 2019

Pursuant to 18 Code of Federal Regulations (C.F.R.) § 5.5 of the Federal Energy Regulatory Commission's (FERC or Commission) regulations, the City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities (KPU), owner and operator of the Beaver Falls Hydroelectric Project, FERC Project No. 1922 (Project), hereby gives notice and declares its intent to apply for a new license for the Project.

The following information is provided consistent with the requirements of 18 C.F.R. § 5.5 and 16.6(b).

1. Exact Name and Business Address of the Applicant

Licensee: City of Ketchikan d/b/a Ketchikan Public Utilities
Address: 2417 Tongass Ave, Suite 119D
Ketchikan, AK 99901

Contacts: Jennifer Holstrom
Senior Project Engineer
Ketchikan Public Utilities
2030 Tongass Avenue
Ketchikan, Alaska 99901
Telephone: 907-228-4733
Email: jenniferh@ktn-ak.us

Copies of all correspondence should also be sent to:

Finlay Anderson
Senior Regulatory Consultant
Kleinschmidt Associates
1500 NE Irving Street, Suite 550
Portland, OR 97232
Telephone: 503-345-0517
Email: Finlay.Anderson@kleinschmidtgroup.com

2. Project Number

The Beaver Falls Hydroelectric FERC Project, FERC No. 1922.

3. License Expiration

The Commission issued a 30-year license to operate the Beaver Falls Hydroelectric Project by Order dated November 7, 1994. The license is for a period effective November 1, 1994 and terminates October 31, 2024. KPU will file its Application for New License on or before October 31, 2022.

4. Unequivocal Statement of Intent

KPU hereby unequivocally declares its intent to apply for a new license for the Beaver Falls Hydroelectric Project, FERC No. 1922 and plans to use the Commission's Traditional Licensing Process (TLP).

5. Description of Principal Project Works to be Licensed

The Beaver Falls Hydroelectric Project consists of two developments: Silvis and Beaver Falls. Both developments will be included in KPU's application for new license.

The Silvis Development consists of (1) a 60-foot-high, 135-foot-long Upper Silvis Dam (concrete-face rock-filled structure); (2) an 800-foot-long excavated rock spillway channel leading from Upper Silvis spillway to Lower Silvis Lake; (3) a reservoir (Upper Silvis Lake) with a surface area of about 300 acres and gross storage capacity of about 38,000 acre-feet at elevation 1,154 feet above mean sea level (msl); (4) a 980-foot-long underground power tunnel and a 342-foot-long, 36-inch-diameter steel penstock that convey water to the Silvis Powerhouse; (5) the Silvis Powerhouse containing one 2.1 megawatt (MW) unit; (6) a 150-foot-long trapezoidal shaped channel tailrace that discharges water into Lower Silvis Lake; (7) a 2,900-foot-long, 5-kilovolt (kV) submarine cable beneath Lower Silvis Lake and a 7,000-foot-long, 34.5-kV aerial transmission line; and (8) appurtenances.

The Beaver Falls Development consists of (1) a 32-foot-high, 140-foot-long Lower Silvis Dam (concrete-face rock-filled structure); (2) a spillway with an ungated control weir and unlined rock discharge channel; (3) a reservoir (Lower Silvis Lake) with a surface area of about 67.5 acres and gross storage capacity of about 8,052 acre-feet at elevation 827 feet msl; (4) a 3-foot-high, 40-foot-long mass concrete Beaver Falls Creek Diversion Dam; (5) a 3,800-foot-long underground power tunnel that connects to a 3,610-foot-long above ground steel penstock and conveys water from Lower Silvis Lake to Beaver Falls Powerhouse; (6) a 225-foot-long adit that taps the 3,800-foot-long underground power tunnel and discharges water into Beaver Falls Creek approximately 500-feet upstream of Beaver Falls Diversion Dam; (7) a 4,170-foot-long above ground steel penstock that conveys water from the Beaver Falls Creek Diversion Dam to Beaver Falls Powerhouse; (8) Beaver Falls Powerhouse containing four generating units with a total installed capacity of 5 MW (Unit No. 2 is decommissioned); and (9) appurtenances.

6. Location of the Project

State or Territory:	Alaska
Borough:	Ketchikan Gateway Borough
Township or nearby town:	City of Ketchikan
River	Beaver Falls Creek

7. Installed Capacity of the Project

The Beaver Falls Project has a total installed capacity of 7.1 MW.

8. Names and Mailing Addresses of Entities Listed in 18 C.F.R. § 5.5(b)(8)

- i. *The County in which the Project is located, and in which any Federal Facility that is used or to be used by the Project is located:*

The Beaver Falls Project is located entirely within the Ketchikan Gateway Borough, Alaska.

County Name:	Ketchikan Gateway Borough
Address:	1900 1st Ave. Ketchikan, AK 99901
Phone Number:	(907) 228-6625

The Beaver Falls Project occupies Federal lands located within Tongass National Forest.

- ii. *Every city or town in which any part of the Project is located, and in which any Federal facility that is used or to be used by the Project is located.*

The Beaver Falls Project is located in the Ketchikan Gateway Borough. The Project is located outside the limits of the neighboring Cities of Ketchikan and Saxman.

City of Ketchikan
50 Front St., Suite 203
Ketchikan, AK 99901

City of Saxman
2706 S Tongass Hwy
Ketchikan, AK 99901

The Beaver Falls Project occupies Federal lands located within Tongass National Forest.

- iii. *Each city or town that has a population of 5,000 or more people and is located within 15 miles of the existing Project dams:*

The neighboring City of Ketchikan has a population of 8,272 people, according to the 2017 U.S. Census data.

City of Ketchikan
50 Front St., Suite 203
Ketchikan, AK 99901

- iv. *Each irrigation district, drainage district, or similar special purpose political subdivision: (a) in which any part of the Project is located, and in which any Federal facility that is used or to be used by the Project is located; or (b) that owns, operates, maintains, or uses any Project facility or and Federal facility that is used by the Project:*

There are no irrigation or drainage districts or similar special purpose political subdivisions associated with or in the general area of the Project that own, operate, or maintain or use any Project facility.

The Beaver Falls Project occupies Federal lands located within Tongass National Forest.

- v. *Every other political subdivision in the general area of the Project that there is reason to believe would likely be interested in, or affected by, this notification:*

None.

- vi. *Affected Indian Tribes.*

Indian Tribes potentially interested in the Beaver Falls Project relicensing proceedings include:

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Central Council of Tlingit and Haida Indians
ATTN: Raymond Paddock
9097 Glacier Highway
Juneau, Alaska 99801
907.463.7186

9. Whether the Application is for a Power or Non-Power License

The Beaver Falls Project license application is for a power license.

Furthermore, in accordance with 18 C.F.R. § 5.5, KPU must distribute this notification of intent to appropriate Federal, state, and interstate resource agencies, Indian tribes, local governments, and members of the public likely to be interested in the proceeding. A complete listing of appropriate agencies, tribes, local governments, non-governmental organizations (NGOs), and individuals which are receiving this NOI is provided with the July 16, 2019 transmittal letter for this NOI.

The information required to be made available to the public pursuant to 18 C.F.R § 16.7 is located at the Ketchikan Public Utilities Office at 2930 Tongass Avenue, Ketchikan, AK 99901.

All correspondence and service of documents relating to this Notification of Intent and subsequent proceedings should be addressed or emailed to:

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10. Non-Federal Representative

KPU requests that FERC authorize KPU to initiate consultation, as described in Section 106 of the National Historic Preservation Act, with the Alaska State Historic Preservation Officer and others regarding relicensing of the Project. KPU also requests that FERC designate KPU as its non-Federal representative for the Project for the purpose of informal consultation with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration National Marine fisheries Service for purposes of consultation under section 7 of the Endangered Species Act and the joint agency regulations thereunder at 50 C.F.R. part 402, Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act.

CERTIFICATE OF SERVICE

I hereby certify that I caused to be served, by email, or U.S. First Class Mail, the Notice of Intent to File Application for new License upon all interested parties designated on the attached service list in the Beaver Falls Hydroelectric Project, Project No. 1922, in accordance with Rule 2010 of the Rules of Practice and Procedure, 18 C.F.R. § 385.2010.

July 16, 2019


Signature

Beaver Falls Distribution List
July 2019

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ATTACHMENT D

**PRE-APPLICATION DOCUMENT FOR THE BEAVER FALLS PROJECT
(FERC No. 1922)**

Pre-Application Document
Beaver Falls Hydroelectric Project
(FERC No. 1922)

Prepared for:

City of Ketchikan d/b/a Ketchikan Public Utilities
Ketchikan, Alaska

Prepared by:

Kleinschmidt

Portland, Oregon
www.KleinschmidtGroup.com

July 2019

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**PRE-APPLICATION DOCUMENT
BEAVER FALLS HYDROELECTRIC PROJECT
(FERC No. 1922)**

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ACRONYMS

ACRONYM	DEFINITION
KPU	City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities
Licensee	City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities
FERC	Federal Energy Regulatory Commission
Commission	Federal Energy Regulatory Commission
PAD	Pre-Application Document
kW	Kilowatt
Project	Beaver Falls Hydroelectric Project (FERC No. 1922)
NOI	Notice of Intent
TLP	Traditional Licensing Process
NOAA	National Oceanic and Atmospheric Administration
USFWS	U.S. Fish and Wildlife Service
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
SHPO	State Historic Preservation Office
ADEC	Alaska Department of Environmental Conservation
CFR	Code of Federal Regulations
NGO	Non-Governmental Organization
CEII	Critical Energy Infrastructure Information
EIS	Environmental Impact Statement
EA	Environmental Assessment
NEPA	National Environmental Policy Act
USFS	U.S. Forest Service
FOIA	Freedom of Information Act
MW	Megawatt
SEAPA	Southeast Alaska Power Agency
TNF	Tongass National Forest
msl	mean sea level
HP	Horsepower
KVA	Kilovolt-ampere
KVA	Kilovolts
SCADA	Supervisory Control and Data Acquisition
KWh	Kilowatt Hours
cfs	cubic feet per second
NMFS	National Marine Fisheries Service
EFH	Essential Fish Habitat
NMPC	North Pacific Management Council
Tongass Forest Plan	Tongass National Forest Land and Resource Management Plan
RMA	Riparian Management Area
NWI	National Wetlands Inventory
IPaC	Information, Planning, and Consultation
DPS	Distinct Population Segment

TABLE OF CONTENT'S (CONT'D)

ACRONYM	DEFINITION
CCC	Civilian Conservation Corps
SCORP	Statewide Comprehensive Outdoor Recreation Plan
LWFC	Land and Water Conservation Fund
LUD	Land Use Designation
Comprehensive Plan	Ketchikan Gateway Borough Comprehensive Plan
KMRD	Ketchikan-Misty Fiords Ranger District
Plan	Central/Southern Southeast Area Plan
NPS	National Park Service
BLM	Bureau of Land Management
MRLC	Multi-Resolution Land Characteristics
NLCD	National Land Cover Database
ANC	Alaska Native Corporation
CFC	Cape Fox Corporation
ANCSA	Alaska Native Claims Settlement Act
AMHS	Alaska Marine Highway System
NRHP	National Register of Historic Places
AFN	Alaska Federation of Natives
MIC	Metlakatla Indian Community
KGB	Ketchikan Gateway Borough

**PRE-APPLICATION DOCUMENT
BEAVER FALLS HYDROELECTRIC PROJECT
(FERC No. 1922)**

1.0 INTRODUCTION AND BACKGROUND

1.1 BACKGROUND

The City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities (KPU or Licensee) hereby files with the Federal Energy Regulatory Commission (FERC or Commission) its Pre-Application Document (PAD) for relicensing of the existing 7,100 kilowatts (kW) Beaver Falls Hydroelectric Project (FERC Project No. 1922) (Project). The Beaver Falls Project is a major project located on Beaver Falls Creek near the City of Ketchikan, Ketchikan Gateway Borough, Alaska. KPU is the current licensee, owner, and operator of the Project.

FERC issued a 30-year license to KPU to operate the Project on November 7, 1994. The license went into effect on November 1, 1994 and will expire on October 31, 2024. KPU intends to file an application for a new license prior to October 31, 2022, two years prior to the license expiration date. This PAD accompanies KPU's Notice of Intent (NOI) to seek a new license for the Beaver Falls Project. By filing the NOI and PAD, KPU is initiating the formal start of the FERC licensing process for the Beaver Falls Project. KPU is simultaneously requesting use of the Traditional Licensing Process (TLP). A formal request for authorization to use the TLP and justification for this request is included in the cover letter filed with this PAD. KPU's use of the TLP is supported by the National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), Alaska Department of Fish and Game (ADFG), Alaska Department of Natural Resources (ADNR), Alaska State Historic Preservation Office (SHPO), and Alaska Department of Environmental Conservation (ADEC). Agency emails expressing support of KPU's use of the TLP are attached to this PAD cover letter.

As specified in 18 Code of Federal Regulations (CFR) § 5.6 (c) and (d), this PAD provides FERC and interested parties with summaries of existing, relevant, and reasonably available information related to the Project that is in KPU's possession as supplemented by a due diligence search. KPU is distributing this PAD and NOI simultaneously to federal and state resource agencies, local governments, Indian tribes, non-governmental organizations (NGOs), members

of the public, and other parties potentially interested in the relicensing proceeding (Appendix A provides the distribution list for the NOI and PAD). The information contained in this document was assembled based on the requirements set forth in 18 CFR § 5.6 and is organized as follows:

- **Section 2.0** – Purpose of the Pre-Application Document;
- **Section 3.0** – Process Plan, Schedule, And Protocols per 18 CFR § 5.6(d)(1);
- **Section 4.0** – Project Location, Facilities, and Operations, per 18 CFR § 5.6(d)(2);
- **Section 5.0** – General Description of the River Basin, per 18 CFR § 5.6(d)(3)(xiii);
- **Section 6.0** – Description of the Existing Environment, per 18 CFR § 5.6(d)(3)(ii)-(xii).
- **Section 7.0** – Preliminary Issues, Project Effects, and Potential Studies, per 18 CFR § 5.6(d)(3) and (4).
- **Section 8.0** – Relevant Comprehensive Management Plans, per 18 CFR § 5.6(d)(4)
- **Appendices**

Information containing Critical Energy Infrastructure Information (CEII) pursuant to FERC's June 23, 2003 Order No. 630-A or confidential financial information as defined by 18 CFR §388.112 is filed as an appendix under separate cover to the Commission only.

1.2 CLIENT'S AGENTS

The following persons are authorized to act as agents for the applicant pursuant to 18 CFR § 5.6(d)(2)(i):

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2.0 PURPOSE OF THE PRE-APPLICATION DOCUMENT

By filing the NOI and this PAD, KPU is initiating the formal beginning of the FERC TLP relicensing process for the Beaver Falls Project. The purpose of this PAD is to: (1) describe the existing facility and current and proposed operations of the Project; (2) summarize existing information that is relevant to the evaluation of the Project relicensing; and (3) define pertinent Project issues and potential study needs. This PAD is intended to assist resource agencies, municipalities, Indian tribes, NGOs, and other interested parties in identifying potential resource issues and related information needs, and to develop potential study requests (18 CFR § 5.6(b)). The PAD is a precursor to the environmental analysis section of the License Application and to FERC's Scoping Documents and Environmental Impact Statement (EIS) or Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). Filing the PAD concurrently with the NOI enables those who plan to participate in the relicensing to familiarize themselves with the Project at the beginning of the proceeding. This familiarity is intended to enhance the scoping process that follows the filing of the PAD.

FERC's regulations require that a Licensee exercise due diligence in obtaining and including existing relevant and reasonably available information about the Project and related resources. To accomplish this, KPU conducted the following:

- Thoroughly reviewed KPU files for relevant information regarding the Project;
- Distributed a Preliminary Information Document (PID) and Stakeholder Information Questionnaire to an initial list of resource agencies on March 15, 2019 (Appendix B). The PID provides background information on the Beaver Falls Project's upcoming relicensing process, description of the Project layout and operations, as well as high level summaries of known resources. The Stakeholder Information Questionnaire also reviews the Project's upcoming relicensing need and asks questions pertaining to each organization's interest in participating in the Project's relicensing process, whether the organization knows of any existing, relevant, and reasonably available information that describes the Project's existing or historical environment, and if the organization is aware of any specific resource issues occurring at or near the Project. Appendix B provides a copy of the PID and Stakeholder Information Questionnaire as well as copies of responses to the Stakeholder Information Questionnaire.
- On April 10, 2019, KPU hosted an initial stakeholder conference call with resource agency personnel that were distributed the PID and Questionnaire. Ten resource agency personnel attended the meeting.
- On May 21, 2019, KPU hosted an informal site visit open to resource agencies to attend. Two participants from the U.S. Forest Service (USFS) attended.

- KPU additionally conducted searches of other potential information sources, including peer-reviewed journal articles, reference books, and the internet.

All information sources cited in this PAD are appropriately referenced.

3.0 PROCESS PLAN, SCHEDULE, AND PROTOCOLS

3.1 OVERALL PROCESS PLAN AND SCHEDULE

As noted in Section 1.0, KPU is requesting to use the Commission's TLP for this relicensing effort. KPU intends to follow the below Process Plan and Schedule (Table 3-1) using the procedures and timeframes set forth in 18 CFR §16.8 (TLP) and based upon filing the NOI and PAD on July 16, 2019.

All subsequent dates given are derived from the NOI and PAD filing date and final application filing date of October 31, 2022. Additionally, in developing the Process Plan and Schedule, KPU has included timeframes for Formal Dispute Resolution (18 CFR § 16.8) even though any study disputes may be resolved through informal dispute resolution. Because there is some flexibility in the dates given, the Process Plan and Schedule is subject to change throughout the relicensing proceeding. KPU will keep an updated schedule on the Project's relicensing website located at: <https://www.beaverfallsrelicensing.com/>.

TABLE 3-1 RELICENSING PROCESS PLAN AND SCHEDULE

ACTIVITY ¹	RESPONSIBLE PARTY	TIMEFRAME	REGULATION	DATES ^{2,3}
Stage I				
File NOI/PAD, Request for TLP, and Newspaper Notice	KPU	No later than 5 years prior to expiration.	18 CFR§5.5; §5.6; §16.6; §16.8	7/16/2019
FERC Issues Notice of Commencement & Approves Use of TLP	FERC	60 days after PAD filed.	18 CFR §5.8; §16.8	9/14/2019
Provide FERC/Agencies/Public with Notification of Joint Meeting Location & Timing	KPU	15 days prior to Joint Meeting.	18 CFR§16.8 (b)(3)	10/2/2019
Hold Joint Agency/Public Meeting + Site Visit	KPU	30-60 days after FERC Approval of TLP	18 CFR§16.8 (b)(3)	10/23/2019
Comments on PAD/ Study Requests	FERC/Stakeholders	60 days after Joint Agency Meeting.	18 CFR§16.8 (b)(5)	12/16/2019
Dispute Resolution as Necessary			18 CFR§16.8 (b)(6)	
Stage II				
Conduct First Season Studies	KPU	Begin approximately 150 days after study requests.	18 CFR§16.8 (c)	5/7/2020

ACTIVITY ¹	RESPONSIBLE PARTY	TIMEFRAME	REGULATION	DATES ^{2,3}
Issue Draft Study Report	KPU	Approximately 230 days after study start.	18 CFR§16.8 (c)	1/26/2021
Conduct Second Season Studies (If Necessary)	KPU		18 CFR§16.8 (c)	TBD 2021
Submit Draft Application	KPU	Approximately 150 days before Final License Application.	18 CFR§16.8 (c)(4)	6/3/2022
Comments on Draft Application	FERC/Stakeholders	90 days from Draft Application submittal.	18 CFR§16.8 (c)(4)(5)	9/1/2022
Dispute Resolution as Necessary			18 CFR§16.8 (c)(6)	
Stage III				
Submit Final License Application	KPU	At least 24 months before the existing license expires.	18 CFR§16.8 (d); §16.9(b)	10/31/2022
License Expiration				10/31/2024

¹ Activities in shaded areas are not necessary if there are no study disputes.

² If the due date falls on a weekend or holiday, the deadline is the following business day.

³ The schedule is subject to change throughout the relicensing proceeding. For an updated schedule, see <https://www.beaverfallsrelicensing.com/>

3.1.1 JOINT AGENCY & PUBLIC MEETING AND SITE VISIT

As set forth in the TLP regulations, KPU will schedule a Joint Agency and Public Meeting, including an opportunity for a site visit, with all pertinent resource agencies, NGOs, Indian tribes, and members of the public. Subsequent to FERC granting authorization of the TLP, KPU will provide stakeholders with written notice of the time and place of the joint meeting and a written agenda at least 15 days in advance of the meeting. Pursuant to 18 CFR §16.8(b)(3), the joint meeting will be held no earlier than 30 days and no later than 60 days from the date of Commission approval of use of the TLP. Pending the Commission's approval of the TLP, KPU plans to hold the Joint Agency and Public Meeting at the Ted Ferry Civic Center, 888 Venetia Ave, Ketchikan, AK 99901. KPU will confirm location and time of the meeting and site visit with the Distribution List upon receiving notification from FERC regarding the TLP request.

3.1.2 TLP PARTICIPATION

KPU has provided this PAD to representatives of federal and state resource agencies, local governments, Indian tribes, NGOs, members of the public, and other parties potentially

interested in the relicensing proceedings (Appendix A). Any party that would like to be added to or removed from the distribution list should send a written request to:

Finlay Anderson
Senior Regulatory Consultant
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1500 NE Irving Street, Suite 550
Portland, OR 97232
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Email: Finlay.Anderson@kleinschmidtgroup.com

3.1.3 COMMUNICATION AND DOCUMENT DISTRIBUTION

KPU's goal is to maintain open communication during the licensing process and to provide public access to relevant Project licensing information. KPU anticipates distribution of relevant documents, submittal of comments, and correspondence will be largely conducted electronically, either by electronic filing of documents with the FERC or via e-mail distribution. KPU will maintain documentation of all electronic correspondence as part of formal agency consultation proceedings.

Relicensing documents can be downloaded from KPU's Project relicensing website at: <https://www.beaverfallsrelicensing.com/>. All requests for hard copies of relicensing documents should be sent to Ms. Jennifer Holstrom using the contact information provided in Section 1.2 and should clearly indicate the document name, publication date, and FERC Project No. 1922. A reproduction charge and postage costs may be assessed for hard copies requested by the public.

Relicensing documents are also available to the public through the FERC eLibrary, a records information system on the Internet that contains documents submitted to and issued by the FERC. The eLibrary can be accessed through the FERC's homepage, at <http://www.ferc.gov>, or directly at <https://elibrary.ferc.gov/idmws/search/fercgensearch.asp>. Documents filed with FERC as part of the Project licensing process are available for viewing and printing via eLibrary by searching under the Project's docket P-1922. Interested parties can subscribe to the Docket P-1922 for the Beaver Falls Project under eSubscription on the Commission's website to receive notices of issuance and filings by e-mail.

3.1.4 RESTRICTED DOCUMENTS

Certain Project-related documents are restricted from public viewing in accordance with FERC regulations. CEII (defined under 18 CFR § 388.113) are materials related to the design and safety of dams and their appurtenant facilities, as well as information that is necessary to protect national security and public safety, are restricted. Anyone seeking CEII information from FERC must file a CEII request. FERC's website at www.ferc.gov/help/how-to/file-ceii.asp contains additional details related to CEII. CEII documents associated with Appendix E of this PAD have been filed separately with the FERC.

Additional restricted materials include Privileged Information associated with protecting sensitive information, such as the location of rare, threatened, or endangered species, and sensitive archaeological or other culturally significant properties. Anyone seeking this information from FERC must file a Freedom of Information Act (FOIA) request. Instructions for FOIA are available on FERC's website at www.ferc.gov/legal/ceii-foia/foia.asp.

3.1.5 FERC COMMUNICATION

FERC has presently assigned Julia Kolberg of its staff to serve as an advisor during the Beaver Falls Project proceeding. For questions related to FERC communications, please contact Julia at 202-502-8261 or julia.kolberg@ferc.gov.

4.0 PROJECT LOCATION, FACILITIES, AND OPERATIONS

4.1 KPU OVERVIEW

KPU is a municipally-owned utility that is responsible for providing affordable energy to the City of Ketchikan and the Ketchikan Gateway Borough, located on Revillagigedo Island in Southeast Alaska (Figure 4-1). In an average year, approximately 96% of the power distributed by KPU is generated by hydroelectric facilities. KPU owns, operates, and maintains three hydroelectric facilities including the Beaver Falls Hydroelectric Project (7.1 megawatts (MW)), Ketchikan Lakes Hydroelectric Project (FERC No. 420) rated at 4.2 MW, and the Whitman Lake Hydroelectric Project (FERC No. 11841) rated at 4.6 MW (Figure 4-1). All facilities are located on Revillagigedo Island and KPU primarily sells hydroelectric energy to its customers. During times when hydroelectric energy is limited, diesel generation supplements the area's energy needs¹.

KPU also purchases power from the Southeast Alaska Power Agency (SEAPA). SEAPA owns two remote hydroelectric facilities: Swan Lake Hydroelectric Project (FERC No. 2911) rated at 25 MW and Tyee Lake Hydroelectric Project (FERC No. 3015) rated at 25 MW. The Swan Lake Project is located on Revillagigedo Island, approximately 22 miles from Ketchikan and the Tyee Project is located 62 miles away at the head of Bradfield Canal, approximately 40 miles southeast of Wrangell, AK (Figure 4-1). Ketchikan has primary use of the Swan Lake facility generation and secondary use of the Tyee facility generation, after the communities of Petersburg and Wrangell (SEAPA 2013).

SEAPA is a regional Joint Action Agency of the State of Alaska that in addition to the two hydroelectric facilities, owns 14 miles of submarine cables and 175 miles of overhead transmission lines serving the municipalities of Ketchikan, Wrangell, and Petersburg, Alaska (SEAPA 2013). SEAPA sells its generated power to Ketchikan, Wrangell, and Petersburg as outlined in a 2009 Power Sales Agreement at a whole sale power rate.

¹ 2018-2019 has not been a typical operating year for KPU. KPU has been operating its diesel generators in tandem with its hydroelectric facilities since September 2018.

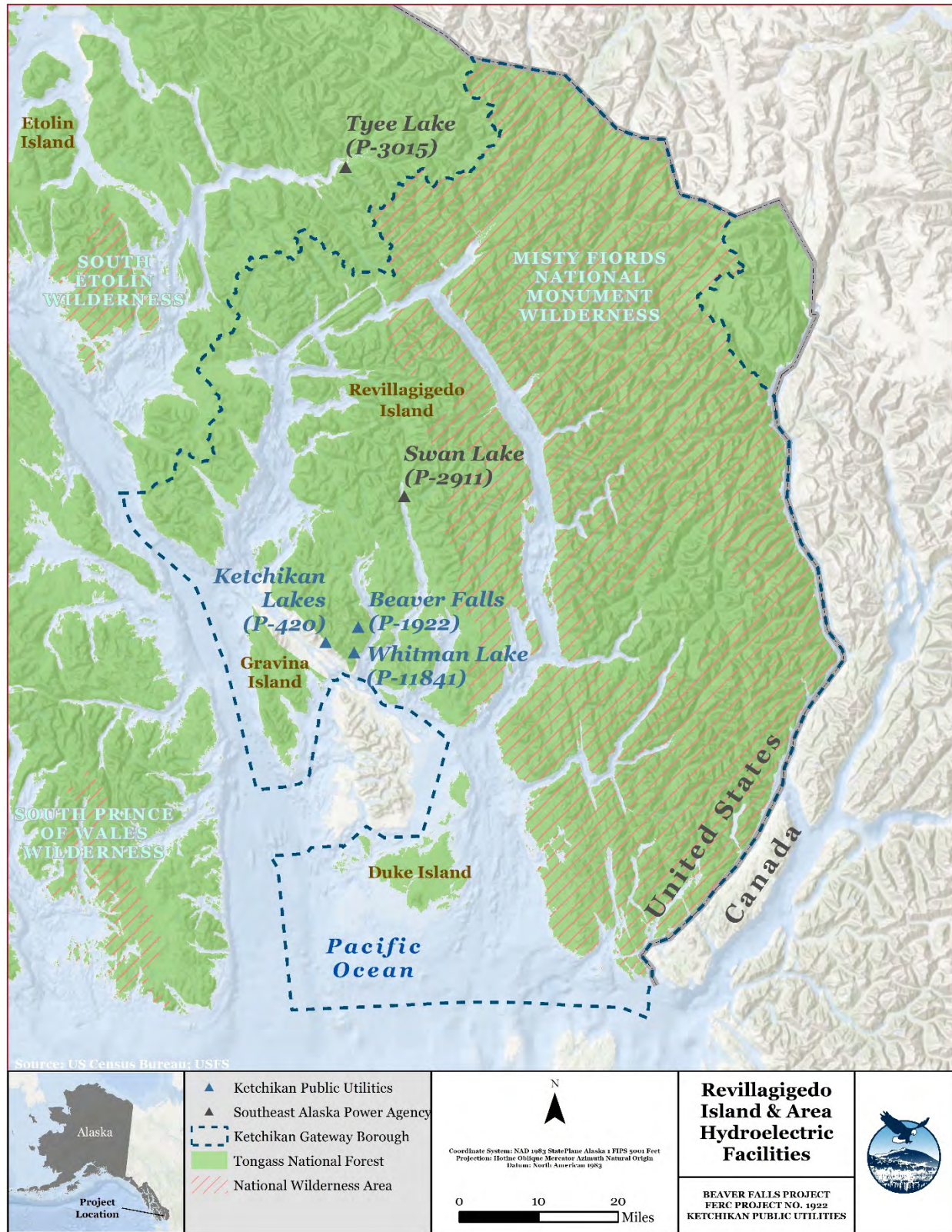


FIGURE 4-1 REVILLAGIGEDO ISLAND AND AREA HYDROELECTRIC FACILITIES

4.2 PROJECT OVERVIEW

The 7.1 MW Beaver Falls Project is located on Beaver Falls Creek, approximately 6 miles northeast of the City of Ketchikan, Alaska (Figure 4-2). The Project occupies federal lands within Tongass National Forest (TNF) and consists of two developments: Silvis and Beaver Falls. The Project provides power throughout the Ketchikan Gateway Borough and is considered KPU's most important generation asset, as it has the largest storage capacity and provides approximately 30 percent of KPU's total electric generation.

The Silvis Development includes the naturally occurring Upper Silvis Lake, Upper Silvis Dam, concrete spillway, power conduit consisting of a tunnel and penstock, a single-unit powerhouse, and a transmission line (Figure 4-3).

The Beaver Falls Development includes the naturally occurring Lower Silvis Lake, Lower Silvis Dam, concrete spillway, Beaver Falls Creek Diversion Dam, two power conduits, a powerhouse containing three active and one decommissioned generating units, a switchyard, and substation (Figure 4-4 and Figure 4-5).

The Beaver Falls Project boundary was updated in 2018 per FERC Order Amending License, Revising Project Boundary, Approving Revised Exhibit G Drawings, and Revising Annual Charges dated March 19, 2018 (Figure 4-3) (FERC 2018) (Appendix D). The Project boundary tightly outlines the Project facilities as well as an access road. The Project boundary occupies approximately 478 acres of land owned by the United States (TNF) and approximately 21 acres of non-federal lands subject to Section 24 of the Federal Power Act. There are no changes proposed to the Project boundary.

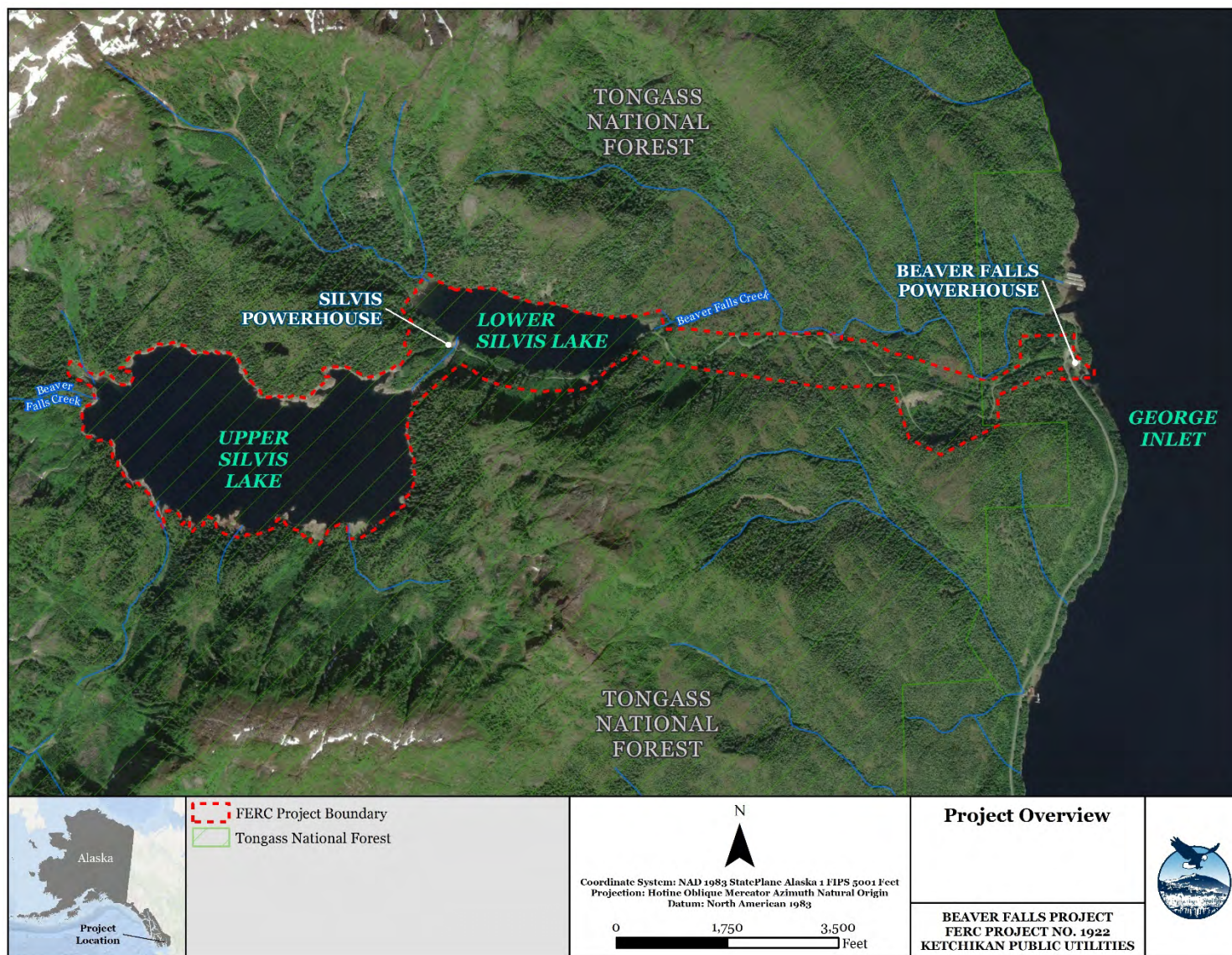


FIGURE 4-2 BEAVER FALLS PROJECT LOCATION AND OVERVIEW

4.3 PROJECT FACILITIES

4.3.1 SILVIS DEVELOPMENT

4.3.1.1 UPPER SILVIS DAM AND SPILLWAY

Upper Silvis Dam is a concrete-faced rock-filled structure constructed across the natural outlet of Upper Silvis Lake. Upper Silvis Dam has a maximum height of approximately 60 feet with a crest elevation of 1,164 feet above mean sea level (msl). The dam crest has an approximate width of 22 feet and a crest length of approximately 135 feet.

The Upper Silvis Spillway is an ungated control weir constructed in a natural notch approximately 450 feet southeast of the dam, with an 800-foot-long excavated rock spillway channel from the weir to Lower Silvis Lake. The weir is a concrete-faced rock-filled structure with a crest length of 54 feet and a height of 16 feet (crest at 1,154 feet msl). The spillway channel is approximately 20-feet-wide with a maximum depth of 8 feet. When the lake level exceeds elevation 1,154-feet msl, water spills over the concrete control weir and is conveyed to Lower Silvis Lake through the spillway channel.



PHOTO 4-1 UPPER SILVIS DAM

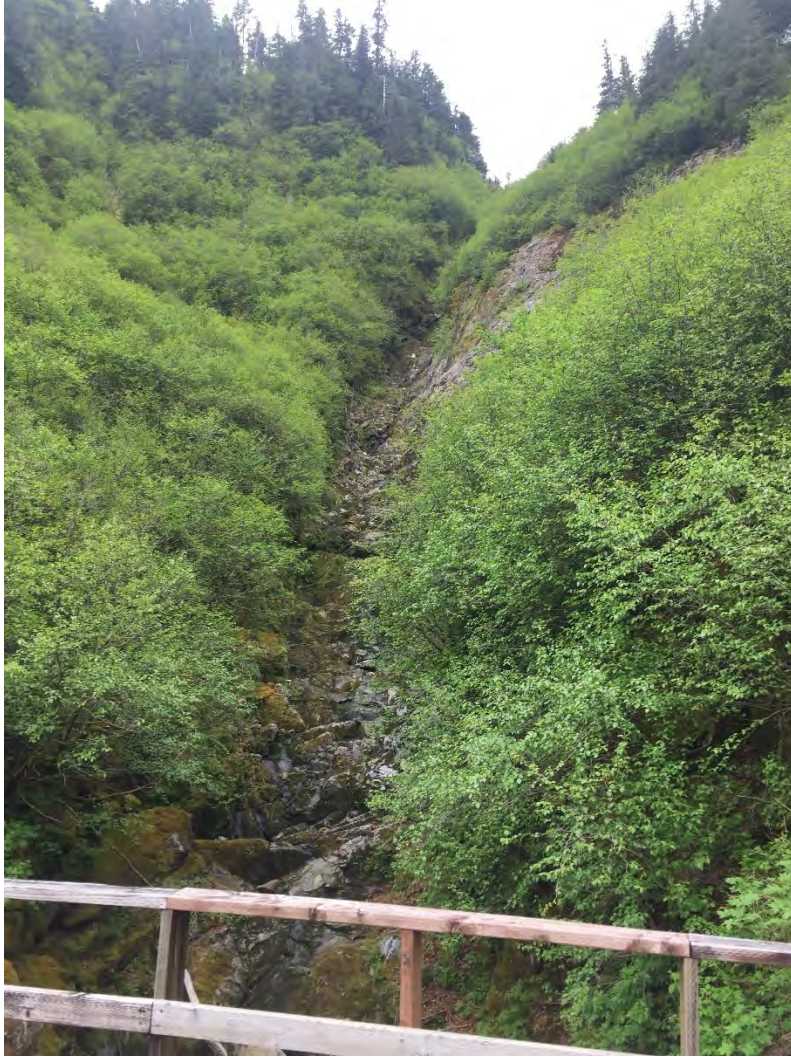


PHOTO 4-2 UPPER SILVIS SPILLWAY

4.3.1.2 UPPER SILVIS LAKE

The Upper Silvis Dam impounds Upper Silvis Lake. Upper Silvis Lake is operated at the normal maximum water surface elevation of 1,154 feet msl. Its gross storage capacity at maximum surface elevation is estimated to be 38,000-acre-feet, and its surface area is 300 acres. The minimum water surface elevation is 1,055-feet msl. Usable storage capacity between the normal maximum and minimum water surface elevations is 22,000-acre-feet.



PHOTO 4-3 UPPER SILVIS LAKE

4.3.1.3 UPPER SILVIS POWER CONDUIT

Water from Upper Silvis Lake is conveyed to the Silvis Powerhouse via a power tunnel (Tunnel No. 1) and penstock system. At a point approximately 200 feet downstream from the tunnel intake, a riser shaft was excavated to 1,045 feet msl, and a 3-foot by 4-foot manually operated Chapman sluice gate was installed across the tunnel to control outflow from Upper Silvis Lake to Silvis Powerhouse. This sluice gate is used for emergency closure and is capable of withstanding 100 feet of static head. The intake tunnel invert is 96-feet-below the normal maximum lake surface of 1,154 feet msl. The tunnel extends approximately 980 feet to the exit portal at elevation 1,043-feet msl, where it connects to a 342-foot-long, 36-inch-diameter penstock that conveys water to the generating unit in the Silvis Powerhouse. A short section of pipe with a valve additionally extends horizontally from the tunnel outlet. This pipe is used to bypass the penstock and powerhouse when needed and discharges water directly to the Upper Silvis spillway channel.

4.3.1.4 SILVIS POWERHOUSE

The Silvis Powerhouse is located at the southwest end of Lower Silvis Lake, at elevation 833 feet msl, near the natural outlet of Upper Silvis Lake. The powerhouse is a reinforced concrete structure, approximately 30-feet by 40-feet by 20-feet high, and houses a 2.1 MW Francis-type, horizontal shaft turbine-generator unit. The unit is rated at 3,000 horsepower (HP) under 288-feet average net head. The powerhouse has a minimum hydraulic capacity of 18 cfs and a maximum hydraulic capacity of 104 cfs. The generator is rated at 2,500 kilovolt-ampere (kVA), 0.85 power factor, 2.1 MW, and 4.16 kilovolts (kV). Remote monitoring and controls are enabled at the powerhouse. A 14-inch butterfly valve located in the powerhouse moves flow from the penstock and discharges it into Lower Silvis Lake, ensuring a supply of water to Lower Silvis Lake during plant shut downs. Water from the powerhouse is discharged into Lower Silvis Lake via a trapezoidal-shaped rip rap tailrace channel approximately 150-feet-long.



PHOTO 4-4 SILVIS POWERHOUSE



PHOTO 4-5 SILVIS TAILRACE

4.3.1.5 SILVIS TRANSMISSION LINE

The Silvis Transmission Line consists of a 2,900-foot-long, 5 kV, 250 MCM submarine power cable through Lower Silvis Lake and a 7,000-foot-long, 34.5 kV aerial transmission line. The submarine cable transmits the generation to a 2,500 kVA, 34.5-4.16 kV transformer located near Lower Silvis Dam. The aerial transmission line transmits the generation from the transformer to the Beaver Falls Switchyard. Appendix E contains the single line diagram for the Beaver Falls Project, which is being filed as CEII.

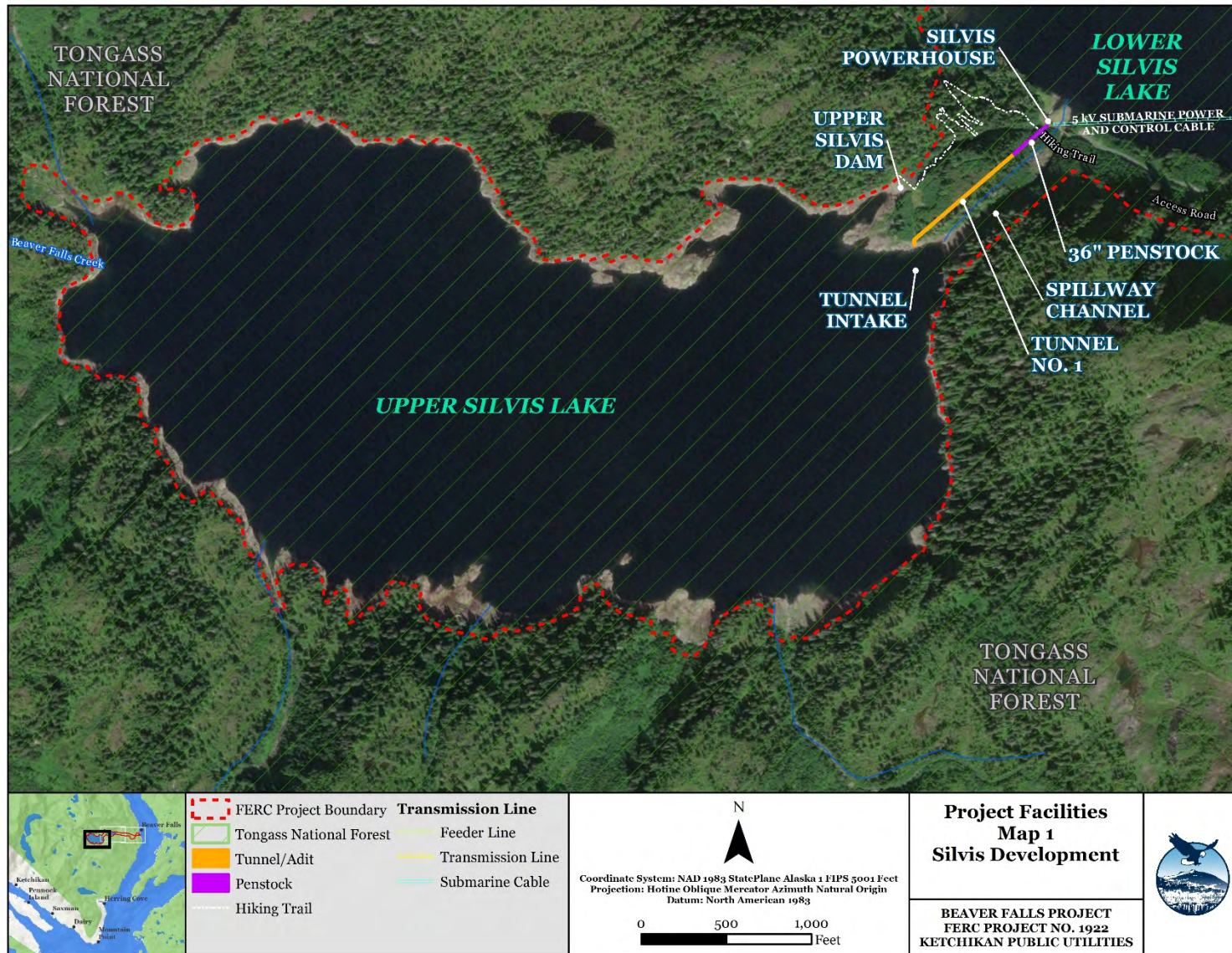


FIGURE 4-3 SILVIS DEVELOPMENT COMPONENTS

TABLE 4-1 SILVIS DEVELOPMENT COMPONENTS AND SPECIFICATIONS

DESCRIPTION	NUMBER OR FACT
Silvis Development	
Upper Silvis Dam and Spillway	
Dam Construction Type	Concrete-faced rock-filled structure
Dam Height	60 feet high
Dam Crest Elevation	1,164 feet msl
Dam Crest Width and Length	22 feet wide by 135 feet long
Spillway Construction Type	An 800-foot-long, 20-feet-wide, 8feet-deep excavated rock spillway channel spanning from an ungated control weir to Lower Silvis Lake, approx. 450 feet southeast of Dam.
Upper Silvis Lake	
Normal Maximum Water Surface Elevation	1,154 feet msl
Gross Storage Capacity at Normal Maximum Surface Elevation and surface area	38,000-acre feet; 300 acre surface area
Minimum Water Surface Elevation	1,055 feet msl
Usable Storage Capacity between Normal Maximum and Minimum Surface Water Elevation	22,000-acre feet
Upper Silvis Power Conduit	
Intake	A 3 foot by 4 foot manually operated sluice gate capable of withstanding 100 feet of static head is situated at the head of the Power Conduit.
Power Tunnel No. 1	The intake tunnel invert is 96 feet below the normal maximum lake surface of 1,154 feet msl and extends 980 feet to an exit portal at elevation 1,043 feet msl
Penstock	Water flows from the intake tunnel to a 342 feet-long, 36-inch-diameter penstock that conveys water to the Silvis Powerhouse.
Silvis Powerhouse	
Year Built	1975-1976
Construction Type & Dimensions	Reinforced concrete structure
Dimensions	Approximately 30 feet by 40 feet by 20 feet high
Turbines and Generators	
Number	1
Type	Francis-type horizontal shaft

DESCRIPTION	NUMBER OR FACT
Rating	2.1 MW
Design Capacity	3,000 HP
Maximum Hydraulic Capacity	104 cfs
Minimum Hydraulic Capacity	18 cfs
Design Head	288 feet
Generator	2,500 KVA, 0.85 power factor, 2.1 MW, 4.16 kV
Switchyard/Transmission Lines	
Submarine Power Cable through Silvis Lake	2,900-foot-long, 5 kV, 250 MCM
Aerial Transmission Line	7,000-foot-long, 34.5 kV
Transformer	2,500 kVA, 34.5-4.16 kV

4.3.2 BEAVER FALLS DEVELOPMENT

4.3.2.1 LOWER SILVIS DAM AND SPILLWAY

The Lower Silvis Dam is a concrete-faced rock-filled structure constructed across the natural outlet of Lower Silvis Lake. Lower Silvis Dam has a maximum height of approximately 32 feet with a crest elevation of 835 feet msl. The dam crest has a width of 10 feet and a crest length of approximately 140 feet.

The Lower Silvis Spillway consists of an ungated control weir and an unlined rock discharge channel on the left abutment of Lower Silvis Dam. The weir is a reinforced concrete structure approximately 3-feet-high by 140-feet-long, with a crest width of 4 feet. The spillway discharge channel is approximately 50-feet-wide and returns flow to Beaver Falls Creek below the dam.



PHOTO 4-6 LOWER SILVIS DAM

4.3.2.2 LOWER SILVIS LAKE

The Lower Silvis Dam impounds Lower Silvis Lake which is operated at the normal maximum water surface elevation of 827 feet msl. The gross storage capacity at the maximum surface elevation is estimated to be 8,052-acre-feet, and the surface area is 67.5 acres. The minimum water surface elevation is 802 feet msl. Usable storage capacity between the normal maximum and minimum water surface elevations is 1,600-acre-feet.



PHOTO 4-7 LOWER SILVIS LAKE

4.3.2.3 LOWER SILVIS POWER CONDUIT

Water from Lower Silvis Lake is conveyed to the Beaver Falls Powerhouse via a power tunnel (Tunnel No. 2 and No. 3) and penstock system. The intake structure is constructed with a galvanized-steel trashrack containing stop-log grooves, deploying logs for emergency closure and a manual or motor-operated locally-controlled sluice gate. The sluice gate controls water entering Tunnel No. 2, which is 3,800-foot-long. Connected to the exit of Tunnel No. 2 is an above-ground 42-inch-diameter by 3,610-foot-long steel penstock that continues through Tunnel No. 3 and conveys water to Beaver Falls Powerhouse Unit Nos. 3 and 4.

Downstream from the intake structure on Lower Silvis Lake, an adit taps Tunnel No. 2. The adit is a 225-foot-long by 20-inch diameter pipe located in a side tunnel. The adit has a 20-inch butterfly valve that discharges water into Beaver Falls Creek, approximately 500 feet upstream of the Beaver Falls Creek Diversion Dam and Intake. The adit's butterfly valve can be controlled locally or remotely.

4.3.2.4 BEAVER FALLS CREEK DIVERSION DAM AND POWER CONDUIT

The Beaver Falls Creek Diversion Dam is located on Beaver Falls Creek approximately two-thirds of a mile downstream of Lower Silvis Lake. The dam is a mass concrete overflow structure approximately 3-feet-high by 40-feet-long that also serves as a spillway.

Coarse timber trashracks are placed at the creek's edge across a short open intake channel with a steel settling box and a concrete shelter house constructed at its end. The steel box supports the main gate for the penstock as well as fine steel trashracks. Steel trashracks are angled and measure 81 inches wide with 1 1/4-inch clear bar spacing. Trashracks are replaced during the fall with mesh panel racks that help to further prevent debris from entering into the generating unit. The main gate is manually operated.

A 4,170-foot-long penstock conveys water from the Beaver Falls Diversion Dam intake to Unit No. 1 in Beaver Falls Powerhouse. The upstream half of the penstock is 30-inches in diameter, decreasing to a 28-inch-diameter. Near the powerhouse, the 28-inch penstock transitions to a manifold with four 18-inch branches. Two of these branches supply Unit No. 1 and two branches supply Unit No. 2, which has been decommissioned.



PHOTO 4-8 BEAVER FALLS CREEK DIVERSION DAM



PHOTO 4-9 BEAVER FALLS CREEK INTAKE

4.3.2.5 BEAVER FALLS POWERHOUSE

The Beaver Falls Powerhouse is located along the shoreline of George Inlet. The powerhouse is a reinforced concrete structure, approximately 30-feet by 147-feet by 25-feet high, and contains four horizontal shaft Pelton generating units, one of which (Unit No. 2) has been decommissioned. Unit No. 1 turbine is an impulse-type with a rated capacity of 1 MW, maximum hydraulic capacity of 33 cfs and minimum hydraulic capacity of 7 cfs, and 1,300 hp under an average net head of 600 feet. The turbine is equipped with a hydraulic governor. The direct-connected generator is rated at 1,250 kVA, 0.80 power factor, 1.0 MW, and 2.4 kVs. Units No. 3 and 4 turbines are impulse units with rated capacities of 2 MW and 3,600 hp each under an average net head of 760 feet. Unit No. 3 maximum hydraulic capacity is 55 cfs and minimum

hydraulic capacity is 8 cfs and Unit No. 4's hydraulic capacity is a maximum of 56 cfs and minimum of 9 cfs. The direct-connected generators are rated at 2,500 kVA, 0.80 power factor, 1.0 MW, and 2.4 kVs.

There are no transmission lines associated with the Beaver Falls Powerhouse. The Project is interconnected to KPU's transmission system at the adjacent Beaver Falls Substation, which includes one 10/12.5 MVA 2.4 kV to 34.5 kV transformer (lower substation/switchyard), and two 34.5 kV oil circuit breakers (upper substation/switchyard).



PHOTO 4-10 BEAVER FALLS POWERHOUSE



PHOTO 4-11 BEAVER FALLS TAILRACE

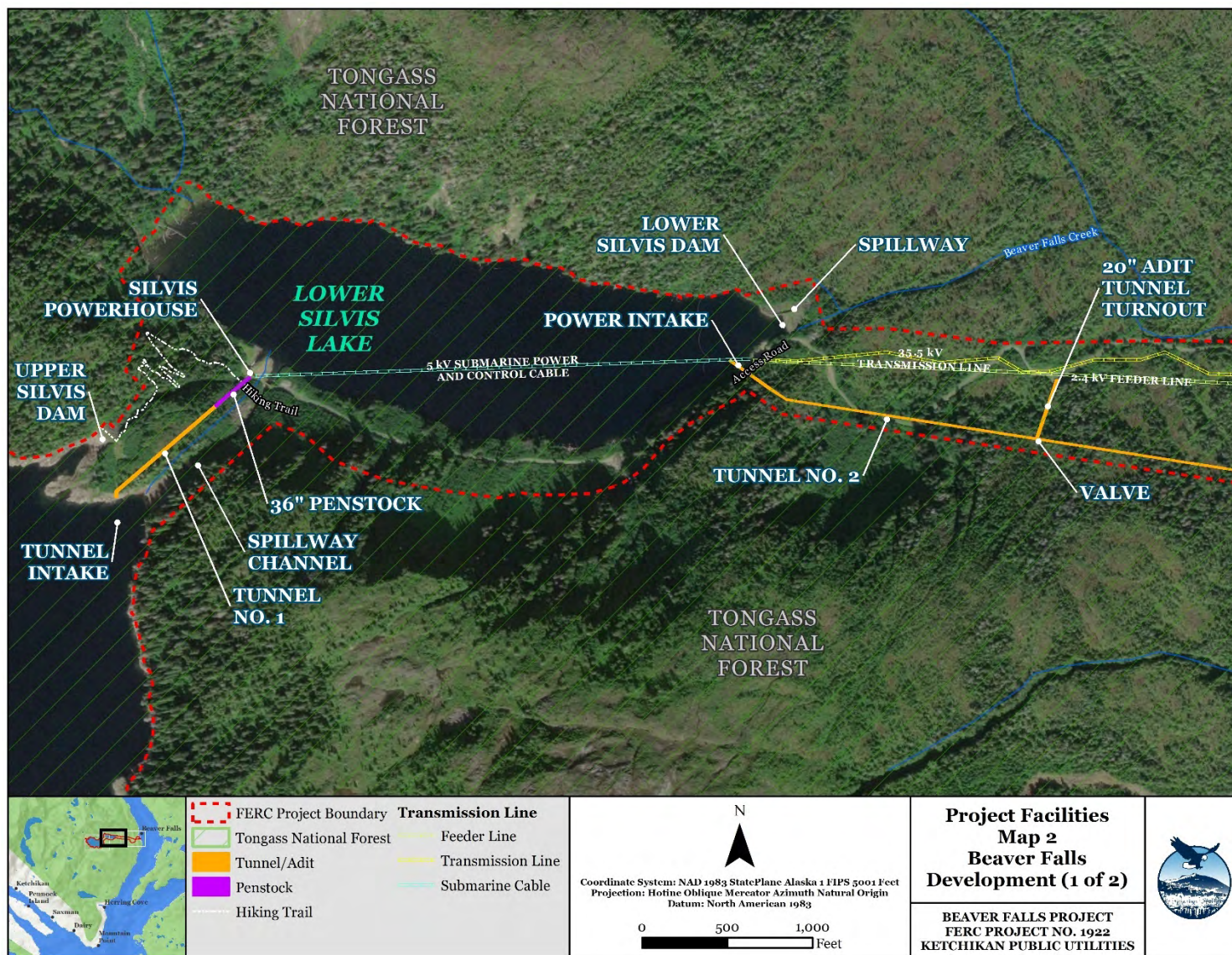


FIGURE 4-4 BEAVER FALLS DEVELOPMENT COMPONENTS MAP 1 OF 2

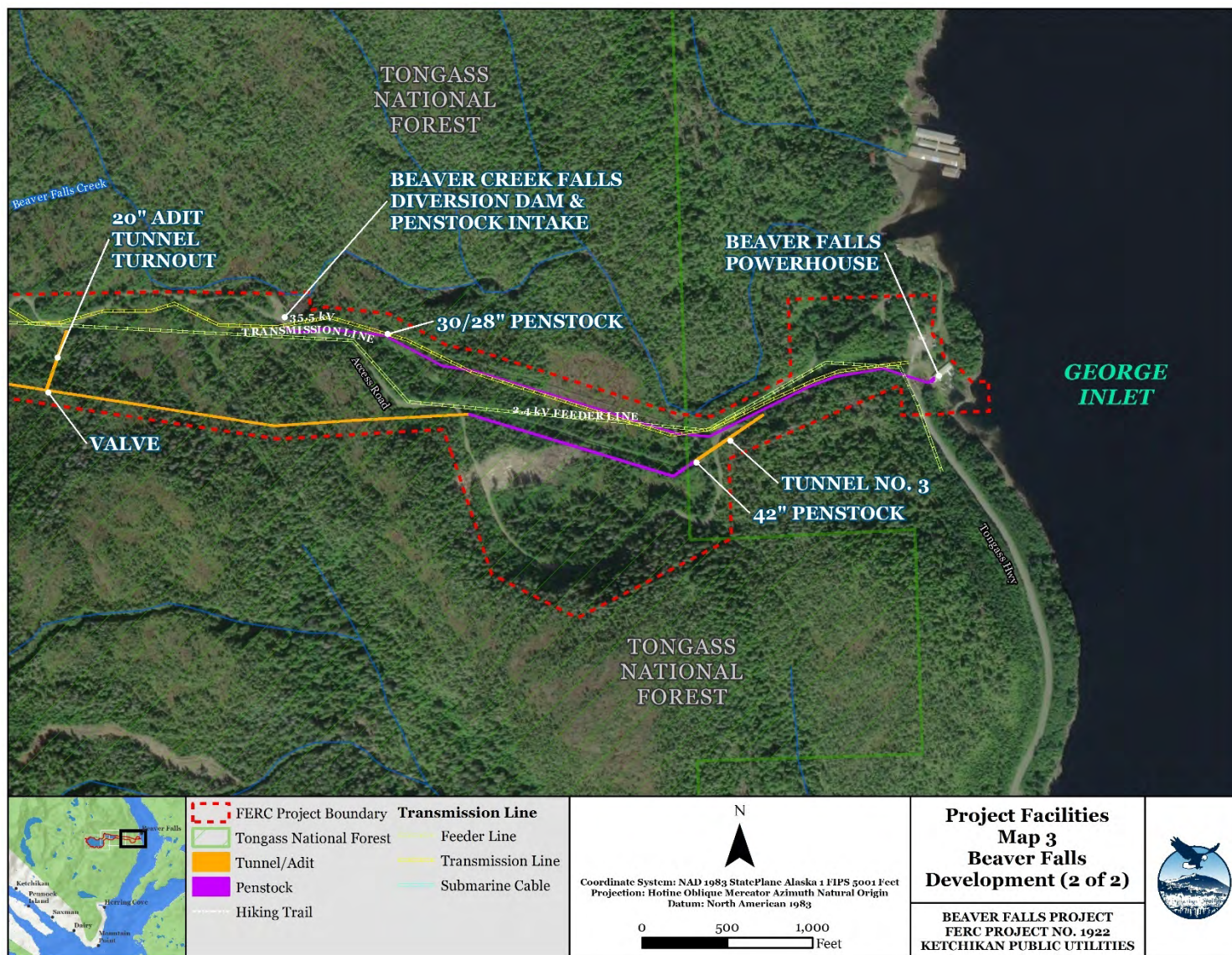


FIGURE 4-5 BEAVER FALLS DEVELOPMENT COMPONENTS MAP 2 OF 2

TABLE 4-2 BEAVER FALLS DEVELOPMENT COMPONENTS AND SPECIFICATIONS

DESCRIPTION	NUMBER OR FACT
Beaver Falls Development	
Lower Silvis Dam and Spillway	
Dam Construction Type	Concrete-faced rock-filled structure
Dam Height	32 feet high
Dam Crest Elevation	835 feet msl
Dam Crest Width and Length	10 foot width; 140 foot length
Spillway	Ungated control weir and an unlined rock discharge channel, approx. 50 feet wide
Lower Silvis Lake	
Normal Maximum Water Surface Elevation	827 feet msl
Gross Storage Capacity at Normal Maximum Surface Elevation and Surface Area	8,052-acre feet; 67.5 acre surface area
Minimum Water Surface Elevation	802 feet msl
Usable Storage Capacity between Normal Maximum and Minimum Surface Water Elevation	1,600-acre feet
Lower Silvis Power Conduit	
Intake	Intake structure containing steel trashrack with stop-log grooves and a manual or motor-operated sluice gate.
Power Tunnel No. 2	3,800-foot-long Tunnel No. 2 connects to the intake.
Penstock & Power Tunnel No. 3	A 3,610 foot long, 42 inch diameter above ground steel penstock connects to the exit of Tunnel No. 2, continues through Tunnel No. 3 and conveys water to Beaver Falls Powerhouse Unit Nos. 3 and 4.
Adit	Downstream of the Lower Silvis Lake intake, an adit taps Tunnel No. 2. The adit is a 225 feet long, 20 inch diameter pipe with a 20 inch butterfly valve that discharges water into Beaver Falls Creek.
Beaver Falls Creek Diversion Dam and Power Conduit	
Construction Type	Mass concrete overflow structure
Dam & Spillway	3 feet high by 40 feet long; also serves as a spillway
Intake	Steel settling box and concrete shelter house with coarse timber trashracks and manually operated gate. Trashracks are angled and measure 81 inches wide with 1 1/4-inch clear bar spacing.

DESCRIPTION	NUMBER OR FACT
Penstock	A 4,170 foot long penstock conveys water to Beaver Falls Powerhouse Unit No. 1. The upper half is 30 inches in diameter and the lower half is 28 inches in diameter.
Powerhouse	
Year Built	1946
Construction Type	Reinforced concrete structure
Dimensions	30 feet by 147 feet by 25 feet high
Turbines and Generators	
Number	4 Total: 3 Commissioned (Unit Nos 1, 3, 4) 1 Decommissioned (Unit No. 2)
Type	Unit No. 1: Horizontal Pelton, Pelton Waterwheel Co. Unit No. 3: Horizontal Pelton, S. Morgan Smith Unit No. 4: Horizontal Pelton, S. Morgan Smith
Rating	Unit No. 1: 1 MW Unit No. 3: 2 MW Unit No. 4: 2 MW TOTAL: 5 MW
Design Capacity	Unit No. 1: 1,300 HP Unit No. 3: 3,600 HP Unit No. 4: 3,600 HP
Maximum Hydraulic Capacity	Unit No. 1: 33 cfs Unit No. 3: 55 cfs Unit No. 4: 56 cfs TOTAL: 144 cfs
Minimum Hydraulic Capacity	Unit No. 1: 7 cfs Unit No. 3: 8 cfs Unit No. 4: 9 cfs TOTAL: 24 cfs
Design Head	Unit No. 1: 600 feet Unit No. 3: 760 feet Unit No. 4: 760 feet

DESCRIPTION	NUMBER OR FACT
Generators	<p>Unit No. 1: 1,250 kVA, 0.80 power factor, 1.0 MW, 2.4 kV.</p> <p>Unit No. 3: 2,500 kVA, 0.80 power factor, 1.0 MW, 2.4 kV</p> <p>Unit No. 4: 2,500 kVA, 0.80 power factor, 1.0 MW, 2.4 kV</p>
Switchyard/Transmission Lines	
Interconnection	<p>There are no transmission lines associated with the Beaver Falls Powerhouse. The Project is interconnected to KPU's transmission system at the adjacent Beaver Falls Substation which includes one 10/12.5 MVA 2.4 kV to 34.5 kV transformer (lower substation/switchyard), and two 34.5 kV oil circuit breakers (upper substation/switchyard).</p>

4.4 CURRENT AND PROPOSED PROJECT OPERATIONS

Upper and Lower Silvis Lake reservoirs are operated for hydroelectric generation only. Upper Silvis Lake provides the primary storage for the entire Beaver Falls Project and is managed between elevation 1,154 feet msl and 1,055 feet msl to maintain Lower Silvis Lake's elevation. Lower Silvis Lake is kept near a maximum elevation 827 feet msl to maximize head while avoiding spill. There are no fixed rule curves for Project operations. Except during spring runoff, most water is used for generation. Minimum flows are not released at the Project, and Beaver Falls Creek generally remains watered throughout the year.

The Project's adit system provides added flexibility to Project operations. The adit is mostly used for peaking operations in the winter or when excess water is present. Unit No. 1 is essentially operated as a run-of-river unit in conjunction with the adit.

KPU's Supervisory Control and Data Acquisition (SCADA) system enables remote monitoring and operation from the control center in Ketchikan which is staffed 24 hours a day, 7 days a week. Operators balance and conserve the reservoirs to ensure current and forecast electrical loads and water demands are being met, while also attempting to minimize the amount of diesel generation needed to supplement hydro generation and minimize the amount of spill at each reservoir. KPU monitors the following Project data:

- Reservoir elevations
- Flow from Upper Silvis Lake to the Silvis Powerhouse Unit No. 1 (penstock flow meter)
- Flow from Lower Silvis Lake to Beaver Falls Powerhouse Units No. 3 and 4 (penstock flow meter)

KPU does not currently propose any operational or infrastructure changes to the Project.

4.5 OTHER PROJECT INFORMATION

4.5.1 CURRENT LICENSE REQUIREMENTS

By Order dated November 7, 1994, the FERC issued a license for the Beaver Falls Hydroelectric Project to KPU (Appendix C). The 30-year license went into effect on November 1, 1994 and expires on October 31, 2024. The license is subject to Standard Articles set forth in Form L-1 (October 1975) entitled "Terms and Conditions of License for Constructed Major Project

Affecting Lands of the United States.” The license is also subject to the following additional articles:

- Article 101 states that notwithstanding the authorizations granted under the Federal Power Act, National Forest System lands within the project boundaries shall be managed by the Forest Service under the laws, rules, and regulations applicable to the National Forest System.
- Article 102 requires that before any construction of the project occurs on National Forest System lands, the Licensee obtain the prior written approval of the Forest Service for all final design plans for project components when the Forest Service deems as affection or potentially affection National Forest System Resources.
- Article 103 requires the Licensee to get written approval from the Forest Service prior to making any changes in the location of any constructed project features or facilities, or in the uses of project lands and waters, or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the Forest Service, and at least 60 days prior to initiation of any such changes or departure, the Licensee shall file a report with the Commission describing the changes, the reason for the changes and showing the approval of the Forest Service for such changes.
- Article 104 requires the Licensee to consult with the Forest Service each year during the 60 days preceding the anniversary date of the license with regard to measures needed to ensure protection and development of the natural resource values of the project area. Within 60 days following such consultation, the Licensee shall file with the Commission evidence of the consultation with any recommendations made by the Forest Service.
- Article 105 requires that if archaeological or historic sites are discovered during project operation, that the Licensee shall: (1) cease operations and consult with the Alaska State Historic Preservation Office (SHPO) and the Forest Service; (2) Prepare a cultural resources management plan and a schedule to evaluate the significance of the sites and to avoid or mitigate any impacts to any sites found eligible for inclusion in the National Register of Historic Places; (3) base the plan on the recommendations of the SHPO and the Secretary on the Interior’s Guidelines for Archaeology and Historic Preservation; (4) file the plan for Commission approval, together with the written recommendations of the SHPO on the plan; and (5) take the necessary steps to protect the discovered sites from further impact until notified by the Commission that all of these requirements have been satisfied.
- Article 106 requires the Licensee to implement the Recreation Plan filed on November 19, 1992, as amended by the (1) additional information filing of July 1992; (2) official transcript of the Beaver Falls Hydroelectric Scoping Meeting on November 18, 1993, and (3) December 7, 1993, comments of Ketchikan Public Utilities on the scoping document for the Beaver Falls Project.
- Article 107 requires the Licensee to maintain the improvements and premises to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer.

- Article 108 states that the Licensee assumes risks of avalanches, rising waters, high winds, limbs or trees, and other hazards. The Licensee is responsible for inspecting the site, rights-of-way, and the immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and, after securing permission from the Forest Service, is responsible for removing such hazards.
- Article 109 requires that the United States shall have unrestricted use of the said right-of-way and any road constructed thereon for all purposes deemed necessary or desirable in conjunction with the protection, administration, management, and utilization of federal lands or resources and alone shall have the right to extent rights privileges for use of the right-of-way and road thereon to states and local subdivisions.
- Article 110 requires that the Licensee shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of National Forest lands under this license.
- Article 201 requires that the Licensee pay the United States annual charges as determined by the Commission, effective the first day of the month in which the license was issued.
- Article 202 requires a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The Licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment.
- Article 203 reserves Commission authority to require the Licensee at any time to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project.
- Article 204 grants the Licensee 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.
- Article 401 permits the Licensee to divert 5.6 cfs of water from the project penstock, in accordance with the agreement dated November 9, 1992, between the Licensee, City of Ketchikan, and the Southern Southeast Regional Aquaculture Association, Incorporated, for operating the Beaver Falls Sockeye Hatchery facilities. The Licensee shall file a plan with the Commission, for approval, by December 31, 1997, to specify how the water rights to the hatchery would be maintained after the agreement expires on December 31, 1998, and throughout the remainder of the license term.
- Article 402 requires the Licensee to file for Commission approval a revised Exhibit G to include within the project boundary the lands needed for reconstruction, use, and maintenance of the segment of trail between Upper and Lower Silvis Lakes.
- Article 501 requires that if the 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 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 received during the term of this new license.

The following license amendments have been subsequently issued for the Project:

- April 27, 1999 FERC Order Amending License amended the Project boundary so to meet the requirements of Standard License Article 5 (Appendix C).
- March 19, 2018 FERC Order Amending License, Revising Project Boundary, Approving Revised Exhibit G Drawings, and Revising Annual Charges amended the Project boundary and corresponding Exhibit G drawing to align with updated mapping techniques and more precise delineation of the boundary, included incorporation of portions of an access road and the recreational hiking trail between Lower and Upper Silvis Lakes within the Project boundary, removed annual transmission line charges, and revised annual charges in accordance with changes to lowered project acreage (Appendix C).

The Project does not have a Water Quality Certificate from the State of Alaska. KPU applied to the ADEC for water quality certification on October 22, 1992. Since the ADEC did not act on the request within 1 year from the receipt date (October 22, 1992), the Project's Water Quality Certificate is deemed waived.

The Project additionally does not have a USFS Special Use Permit. Rather, USFS conditions are included in the 1994 License Articles 101 – 110.

4.5.2 COMPLIANCE HISTORY OF THE PROJECT

The Licensee has a sound compliance history and is unaware of any violations that have occurred at the Project over the course of the current license. Inspections are conducted at the Project by FERC's Portland Regional Office on a regular basis. The Licensee completes all necessary corrective actions to address comments and recommendations arising from FERC inspections in a timely manner.

4.5.3 AVERAGE ANNUAL ENERGY AND DEPENDABLE CAPACITY

The Beaver Falls Project generated a total average annual energy output of 53,607,888 kilowatt hours (KWh) for the period 2014 – 2018. The Silvis Powerhouse generated a total of 12,027,104 KWh and the Beaver Falls Powerhouse generated a total of 41,580,783 KWh from 2014 - 2018. Monthly average energy generation tables for the Silvis Powerhouse, Beaver Falls Powerhouse, and the total Beaver Falls Project for the period 2014 – 2018 is provided in Table 4-3, Table 4-4 and Table 4-5.

Project inflow and outflow records are provided in Section 6.2, and Project flow duration curves are provided in Section 6.2 and within Appendix F.

TABLE 4-3 SILVIS POWERHOUSE NET GENERATION BY MONTH (KWH), 2014 - 2018

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
2014	1,287,966	1,362,663	1,155,071	952,239	1,015,312	1,249,955	1,103,530	1,094,684	887,930	1,136,559	1,287,595	1,251,497	13,785,002
2015	1,274,470	1,299,194	1,404,975	1,217,921	1,475,487	1,366,308	1,052,982	1,103,490	691,295	723,455	933,233	1,081,077	13,623,886
2016	991,660	947,715	1,520,816	1,159,877	1,195,026	1,247,301	1,515,293	1,419,512	978,433	1,071,470	522,409	696,993	13,266,504
2017	695,248	935,966	1,016,119	655,001	685,563	755,068	498,427	512,862	1,165,839	1,054,051	1,081,250	1,117,258	10,172,653
2018	1,185,823	937,594	1,194,954	832,382	858,071	934,342	807,542	595,150	472,469	420,316	247,614	801,220	9,287,476
Average	1,087,033	1,096,626	1,258,387	963,484	1,045,892	1,110,595	995,555	945,139	839,193	881,170	814,420	989,609	12,027,104

TABLE 4-4 BEAVER FALLS POWERHOUSE NET GENERATION BY MONTH (KWH), 2014 - 2018

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
2014	4,235,842	3,362,654	3,977,848	3,502,006	3,612,277	3,348,047	3,804,361	3,679,676	3,569,577	4,461,846	3,959,726	4,214,469	45,728,329
2015	4,344,216	3,992,865	4,157,712	4,096,194	3,833,469	3,777,823	3,637,394	3,891,343	3,565,415	3,884,056	3,543,001	3,367,310	46,090,797
2016	3,807,606	3,934,219	4,376,394	4,105,345	3,452,925	3,370,062	3,919,668	3,612,381	3,775,393	3,381,374	2,868,576	2,482,526	43,086,470
2017	3,306,998	3,263,661	3,329,262	3,572,953	3,306,136	2,861,541	2,163,603	3,186,526	3,910,842	3,866,755	2,766,970	4,025,626	39,560,873
2018	3,577,595	2,467,654	2,749,222	3,445,130	3,868,762	3,048,268	2,458,547	2,042,050	1,790,514	2,220,454	2,519,503	3,249,749	33,437,448
Average	3,854,451	3,404,210	3,718,088	3,744,325	3,614,714	3,281,148	3,196,715	3,282,395	3,322,348	3,562,897	3,131,555	3,467,936	41,580,783

TABLE 4-5 TOTAL BEAVER FALLS PROJECT NET GENERATION BY MONTH (KWH), 2014 - 2018

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
2014	5,523,808	4,725,317	5,132,919	4,454,246	4,627,589	4,598,002	4,907,892	4,774,360	4,457,507	5,598,405	5,247,321	5,465,966	59,513,331
2015	5,618,685	5,292,059	5,562,687	5,314,114	5,308,956	5,144,131	4,690,376	4,994,833	4,256,710	4,607,510	4,476,234	4,448,387	59,714,683
2016	4,799,266	4,881,934	5,897,211	5,265,222	4,647,951	4,617,363	5,434,961	5,031,893	4,753,826	4,452,844	3,390,985	3,179,519	56,352,974
2017	4,002,247	4,199,627	4,345,381	4,227,954	3,991,699	3,616,609	2,662,030	3,699,388	5,076,682	4,920,806	3,848,220	5,142,884	49,733,526
2018	4,763,418	3,405,248	3,944,176	4,277,511	4,726,833	3,982,610	3,266,089	2,637,200	2,262,982	2,640,770	2,767,117	4,050,970	42,724,924
Average	4,941,485	4,500,837	4,976,475	4,707,809	4,660,606	4,391,743	4,192,269	4,227,535	4,161,541	4,444,067	3,945,975	4,457,545	53,607,888

4.5.4 CURRENT NET INVESTMENT 2018

The current net investment in the Project is \$2,801,930. This should not be interpreted as the fair market value of the Beaver Falls Project.

4.5.5 POTENTIAL FOR NEW PROJECT FACILITIES OR CHANGES IN PROJECT OPERATION

KPU is not planning to modify the Beaver Falls Project to incorporate new facilities or modify existing operations.

4.6 REFERENCES

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5.0 GENERAL DESCRIPTION OF THE RIVER BASIN

5.1 OVERVIEW

The Beaver Falls Project is located on Revillagigedo Island, part of the Alexander Archipelago in southeastern Alaska. The island has an area of 1,168 square miles which is primarily managed by the Tongass National Forest (FERC 2000) (Figure 5-1). The Beaver Falls Project is located on the southeastern end of Revillagigedo Island and on Beaver Falls Creek located in the southeastern portion of the George Inlet-Frontal Carrol Inlet sub-watershed of the Ketchikan watershed (HUC 8 19010102) (Figure 5-1).

The drainage area for the Beaver Falls Project primarily consists of several small mountain streams, Beaver Falls Creek, Upper Silvis Lake, and Lower Silvis Lake (FERC 1994). Beaver Falls Creek is approximately 3.7 miles long (FERC 1994). Upper Silvis Lake has a drainage area of approximately 3.4 square miles, and Lower Silvis Lake has a drainage area of approximately 4.6 square miles. The outlet of Lower Silvis Lake is approximately 1.6 river miles upstream of the mouth of Beaver Falls Creek. Beaver Falls Creek flows into George Inlet in the Pacific Ocean. The total drainage area of the Beaver Falls Creek basin is approximately 7.2 square miles (FERC 1994) (Figure 5-1).

The topography in the Beaver Falls Creek headwaters is steep and mountainous, gradually transitioning to lower gradient topography with small level areas in the eastern portion of the watershed (FERC 1994). The Beaver Falls Project is bordered by Mahoney Mountain (elevation approximately 3,350 feet) to the northwest, John Mountain (elevation 3,238 feet) and Deer Mountain (3,000 feet) to the west, Achilles Mountain to the southwest (3,000 feet), and Twin Peaks to the south (3090 feet and 2880 feet) (USFS 2013).

The Beaver Falls Project is located within a Pacific coastal temperate rain forest, a component of the larger North American temperate rainforest which extends from Northern California, along coastal British Columbia, to south-central Alaska (ACRC 2013). The forest is characterized by mountainous terrain, valleys, dense upland forests, forest wetlands and coastal estuaries as well as glaciers, icefields, fjords, and ocean channels (ACRC 2013; USFS 2016a).



FIGURE 5-1 GEORGE INLET-FRONTAL CARROLL INLET WATERSHED MAJOR LAND USES

Approximately 95 percent of the Beaver Falls Project boundary is located within the TNF (KPU 2017). The USFS manages the TNF for many uses including recreation, mining, timber harvest, water supply, old-growth habitat, scenery, research, and wilderness and the USFS has developed land type associations for the TNF to help with forest planning (USDA 2016b). The Beaver Falls Project resides within the “Ketchikan mafics/ultramafics Revillagiedo Island Mountain Slopes and Summits” TNF land type (USDA 2016c). This land type is specifically managed for old-growth habitat, semi-remote recreation, municipal watershed, timber production, and modified landscape (USDS 2016b). Furthermore, the Beaver Falls Project is located in an area also classified as “Revilla Roadless Area” (USDA 2016c). The Revilla Roadless Area is an area with undeveloped public land with no improved roads maintained for travel by motorized vehicles (USDA 2016c).

A majority of the land adjacent to the Beaver Falls Project boundary consists of a mix of natural forest and scrub/shrub land (MRLC 2019). Minor development adjacent to the Project boundary includes the South Tongass Highway which ends at the Beaver Falls Powerhouse and the inoperative George Inlet Packing Company Cannery. Minor development within the Project boundary includes the powerhouses, a couple storage buildings near the Beaver Falls Powerhouse, public parking adjacent to the Beaver Falls Powerhouse, a dual use access road/hiking trail spanning between the Beaver Falls Powerhouse and Lower Silvis Lake, and recreation facilities.

5.2 MAJOR WATER USES

Major water uses near the Beaver Falls Project include hydroelectric generation, water supply, and recreation. Beaver Falls Creek water uses currently include hydroelectric generation and recreation². The Beaver Falls Project is the only hydroelectric development on Beaver Falls Creek (KPU 1992). In addition to the Beaver Falls Project, there are 10 dams located on Revillagiedo Island (USACE 2019). These dams are used for hydroelectric operations, water supply, and recreation purposes (Table 5-1).

² Although License Article 401 permits KPU to divert 5.6 cfs of water from the Project penstock to the neighboring Beaver Falls Sockeye Hatchery facility, this water is no longer diverted as the hatchery facility moved from the Beaver Falls area in 1990.

TABLE 5-1 REVILLAGIGEDO ISLAND DAMS

DAM NAME	RIVER	OWNER	PRIMARY PURPOSE	STORAGE (ACRE-FEET)
Whitman Lake (FERC No. 11841)	Whitman Creek	KPU	Hydroelectric	1,440
Ketchikan Lakes Project (FERC No. 420) Ketchikan Lake Granite Diversion Fawn Lake Dam North Fawn Lake Dam South	Ketchikan Creek Granite Creek None None	KPU	Hydroelectric	13,353 454 80 80
Carlanna Lake	Carlanna Creek	City of Ketchikan	Water Supply	700
Ward Cove Cannery Dam	Walsh Creek	Boyer Towing Inc.	Water Supply	46
Lake Connell	Ward Lake	Power Systems and Supplies of Alaska, LLC	Water Supply	11,000
Swan Lake (FERC No. 2911)	Falls Creek, Carroll Inlet	SEAPA	Hydroelectric	144,763
Bluff Lake Diversion	Neets Creek	SEAPA	Hydroelectric	1,450

Source: USACE 2019

5.3 PROJECT DRAINAGE BASINS' TRIBUTARY STREAMS AND LAKES

Several small (<1.5 miles in length) unnamed tributaries flow into Beaver Falls Creek. The headwaters of two identified³ mountain streams begin at an elevation of approximately 1,800 feet and flow into Upper Silvis Lake. A third identified headwater mountain stream originates at an elevation of approximately 2,000 feet and flows into Lower Silvis Lake (FERC 1994). Lakes in the George Inlet-Frontal Carrol Inlet sub-watershed include Mahoney Lake, Upper Mahoney Lake, and several unnamed smaller lakes (Figure 5-1).

5.4 CLIMATE

The climate of the Beaver Falls Project area is characterized as maritime with heavy precipitation and relatively small ranges in temperature (KPU 1992; FERC 1994). Warm, moist air from the

³ During the rainy season or spring melt, there are many intermittent streams that develop in the Project area. Not all streams have been identified due to the areas remoteness.

Pacific Ocean flows over the mountains on Revillagigedo Island and falls as precipitation in the Project area (USFS 2016c).

Monthly average total precipitation and temperature data collected by KPU at the Silvis Powerhouse and the Beaver Falls Powerhouse are shown in Table 5-2 (KPU 2019). At both sites, the minimum total precipitation occurred in June (10.2 inches at Silvis and 7.1 inches at Beaver Falls) (Table 5-2). The monthly maximum precipitation was in September (25.7 inches) at the Silvis Powerhouse and was in October (18.6 inches) at the Beaver Falls Powerhouse. The monthly average temperature ranged from 29.1°F in February to 54.5°F in July at the Silvis Powerhouse and from 36.4°F in December to 60.8°F in July and August at the Beaver Falls Powerhouse.

TABLE 5-2 MONTHLY AND ANNUAL TOTAL PRECIPITATION AND AVERAGE TEMPERATURE AT THE BEAVER FALLS PROJECT.

	SILVIS POWERHOUSE		BEAVER FALLS POWERHOUSE	
	AVERAGE TOTAL PRECIPITATION 2009-2018 (INCHES)	AVERAGE TEMPERATURE 2014-2018 (°F)	AVERAGE TOTAL PRECIPITATION 2014-2018 (INCHES)	AVERAGE TEMPERATURE 2014-2018 (°F)
January	22.2	32.0	14.5	39.2
February	13.9	29.1	10.2	36.9
March	14.9	32.3	11.3	40.3
April	14.0	37.6	13.3	45.8
May	12.3	46.2	7.2	53.6
June	10.2	49.3	7.1	56.7
July	11.0	54.4	8.9	60.8
August	17.7	54.1	11.3	60.8
September	25.7	48.6	17.2	55.0
October	23.8	41.8	18.6	48.2
November	22.3	34.9	16.7	41.3
December	21.1	30.1	15.4	36.4
Annual	217.0	40.9	151.7	48.0

Source: KPU 2019

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6.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

6.1 GEOLOGY AND SOILS

6.1.1 EXISTING GEOLOGICAL FEATURES

6.1.1.1 BEDROCK LITHOLOGY

Project facilities are primarily located within an area of granodiorite and metasedimentary rock. This rock in the Project area consists primarily of schist with subordinate intercalated graphitic phyllite (R&M Engineering 1995). The schist is dark greenish gray to silver gray in color, intensely to very intensely foliated, slightly weathered to fresh, and medium to hard. This formation has varying degrees of schistosity and grain size. The bedrock fractures are generally tight, occasionally filled with quartz, and widely to closely spaced. The graphitic phyllite is dark gray in color, very fine to fine, and medium hard to hard. The graphitic phyllite is characterized by a pronounced tendency to break along closely spaced parallel planes (KPU 1992).

6.1.1.2 STRATIGRAPHY

The Wrangell Revillagigedo metamorphic belt is commonly intruded by gabbroic and granitic crystalline rocks of Mesozoic age plus a few related dikes (KPU 1992). The youngest rocks in the Project area are intrusive igneous lamprophyre and calc-alkaline dikes of Tertiary age.

The presence of basalts and associated flows found along Behm Canal and the southeastern area along Carroll Inlet indicate more recent volcanic activity during the late Quaternary (KPU 1992).

6.1.1.3 STRUCTURAL FEATURES

Metamorphic rocks within the Wrangell Revillagigedo metamorphic belt are structurally complex. The majority of these rocks were originally deposited in a depositional structure known as the Seymour geosyncline as intermediate to basic lavas and volcanoclastic rocks interbedded with tuffaceous sediments and graywacke (KPU 1992). Several cycles of tectonic deformation, the latest occurring during the late Tertiary, produced the intermediate to high grade metamorphic phyllite, schist, gneiss and dolomite rock types present within the Project area. Figure 6-1 identifies the geologic formations found within the Project area (USGS 2017; Wilson et al 2015).

6.1.1.4 FAULTING

Southeastern Alaska lies within the tectonically active circum-pacific belt, which is one of the most seismically active regions of the United States (R&M Engineering 1995). The present seismicity of southeast Alaska and northwest British Columbia is controlled by the Pacific Plate abutting with the North American Plate. Geologic processes within and surrounding the Project site are further controlled by the interaction and deformation of several local faults in the region. Both the Queen Charlotte Fault, offshore of British Columbia and southeast Alaska, and the Fairweather Fault, in southeast Alaska are thought to represent the active boundary between the Pacific and North American plates (KPU 1992). The Fairweather Queen Charlotte Islands offshore fault system is located approximately 100 miles to the southwest of the Project area.

Two local faults have been identified on Revillagigedo Island. These thrust faults with metamorphosed contacts have been interpreted as being Cretaceous in age (Berg 1978). Both thrust faults trend northwest-southeast and are in areas where older rocks in the north have been thrust over younger rocks to the south. One fault located along the southern edge of the island extends from the southeast end of Behm Canal southwesterly to the mouths of Carroll and George Inlets (KPU 1992). The other thrust fault extends from Thorne Bay trending northwesterly along George Inlet, terminating near Indian Point on the west side of Behm Canal. These faults are ancient geologic features and are not considered to be capable of generating significant seismicity. No evidence of faulting during or since Pleistocene time has been found within the immediate Ketchikan area.

Ketchikan was placed in Seismic Zone 2 by Lemke, 1975, where magnitudes of the largest expected earthquake are between 4.5 to 6.0 on the Richter scale. The three most significant earthquakes in Ketchikan (July 30, 1972; November 17, 1956; and August 22, 1949) had epicenters located along the Fairweather Queen Charlotte Islands offshore fault system. The August 1949 earthquake caused a 2-foot high seiche wave at Ward Lake, located 5 miles northwest of Ketchikan (R&M Engineering 1995).

Of seven recorded seismic events occurring within a 120-mile radius of the Beaver Falls Project between 1899 and 1979, one event (1968) had a magnitude between 2.5 and 3.4, three events (1965, 1965, 1968) had magnitudes between 3.5 and 4.4, and the remaining three events (1949, 1954, 1965) had magnitudes between 4.5 and 5.0 (KPU 1992). There is a distinct difference in

the local seismicity within a 120-mile radius of the Beaver Falls Hydroelectric Project compared to a regional seismicity within a 220-mile radius of the Project area. Between 1899 and 1979, there have been 122 seismic events recorded for the 220-mile radius, but only seven of these were within the 120-mile radius.

6.1.1.5 GLACIAL FEATURES

During the Pleistocene Epoch, glaciers advanced and receded over the entire Revillagigedo Island region at least once (KPU 1992). These glaciers are believed to have attained elevations of 3,000 to 4,000 feet above sea level. The last glacial period in the region ended approximately 13,000 years ago, with regional deglaciation occurring approximately 10,000 years ago (R&M Engineering 1995). Upper and Lower Silvis Lakes occupy oblong, east facing cirques that were created as glaciers carved through the metamorphic and igneous bedrock assemblages.

Combined glaciation throughout the region and alluvial erosion resulted in the formation of such present glacial landforms as U-shaped valleys, elevated terraces, elongated lakes, and deeply scoured embayments, inlets, and passages (R&M Engineering 1995).

6.1.1.6 UNCONSOLIDATED DEPOSITS

Unconsolidated deposits in the Project area consist primarily of Quaternary glacial, terrace, deltaic, alluvium, and talus deposits (KPU 1992).

6.1.1.7 MINERAL RESOURCES

No known mineral resources of economic value exist on lands within the Project boundary.

6.1.2 BEDROCK GEOLOGY

As previously discussed, the Project is located within an area of granodiorite and metasedimentary rock. This formation consists primarily of schist with subordinate intercalated graphitic phyllite (R&M Engineering 1995).

During the late Mesozoic to early Tertiary period, the metamorphic rocks were intruded by major granitic and gabbroic crystalline rocks (KPU 1992). Structurally, these crystalline rocks occur as dikes, sills, stocks, plutons, and large batholiths. Most of these intrusive rocks range in composition from diorite to granodiorite. Also, during the Tertiary period, a late intrusive stage of lamprophyre dikes occurred whose genetic relationship to the granitics is unknown (KPU

1992). In addition, a series of calc-alkaline dikes are present whose genetic relationship is also unclear.

6.1.3 SOILS

6.1.3.1 TYPES AND OCCURRENCE

6.1.3.1.1 PROJECT AREA

Soils in the Project area are composed of sand and loam (KPU 1992). Both Upper and Lower Silvis Lakes as well as Beaver Falls Creek are surrounded by steeply sloped hillsides frequently covered by talus and landslide debris. Soil descriptions for specific Project areas are provided below. Additionally, an USDA NRCS Soil Survey Map and map key are provided in Figure 6-2 and Table 6-1 (USDA 2019).

6.1.3.1.2 UPPER SILVIS LAKE

Upper Silvis Lake is surrounded by talus slopes, with soils formed from the weathering of granitic rock (KPU 1992). Soils occurring on these slopes are primarily of the Token series. The Token series consists of moderately deep, well drained soils that formed colluvium from the weathering of granitic rock (KPU 1992). These soils occur on convex backslopes from 5 to 75 percent. Typical pedon for this series is gravelly sandy loam on a southeast facing slope of 57 percent, under forest vegetation (KPU 1992).

6.1.3.1.3 LOWER SILVIS LAKE

Soils comprising the surrounding slopes of the Lower Silvis Lake shore areas are predominantly of the Helm Granitic phase and the Hofstad Soil Series (USDA 2019). Both soil types are characterized as loamy, mixed, and acidic soils.

Helm Granitic Phase Soils

Helm Granitic Phase soils are characterized as shallow and poorly drained (USDA 2019). These soils occur on backslopes and footslopes of frequently dissected, shallowly incised mountain slopes and infrequently dissected, smooth mountain slopes formed in residuum and fine textured colluvium derived mainly from igneous and detrital sedimentary rock. The typical soil profile for this phase is very fine sandy loam on a forested southeast facing single slope of 90 to 120 percent (KPU 1992).

Hofstad Soil Series

The Hofstad Soil Series consists of moderately deep, poorly drained soils, formed in residuum derived from phyllite underlain by bedrock at depths greater than 20 inches (USDA 2019). Soils

occur on backslopes and footslopes of infrequently dissected smooth mountain slopes, hillslopes, and infrequently dissected toeslopes ranging from 5 to 75 percent. The typical soil profile for this series is silt loam on a northwest facing footslope of 65 percent under forest vegetation (KPU 1992).

6.1.3.1.4 BEAVER FALLS CREEK

Soils comprising the slopes dissected by Beaver Falls Creek are predominantly the McGilvery Series, the Kina Series, the Golden Soil Series, the Hofstad Series, and landslide and talus slopes (KPU 1992).

McGilvery Series

The McGilvery Series consists of shallow, well-drained soils formed from decomposing forest litter overlying bedrock at a depth of 20 inches or less (USDA 2019). McGilvery soils are on convex hillslopes with 5 to 130 percent slopes. The typical soil profile for this series occurs as peat on southwest facing slopes of 10 percent under forest vegetation. The organic layers typically consist of undecomposed to well decomposed leaves, twigs and needles.

Kina Series

The Kina Series consists of deep, very poorly drained soils that formed in partially decomposed organic material derived from sedges (KPU 1992). Kina soils occupy depressional bench-like areas associated with drumloid hills and the toeslope, lower backslopes, and floors of valleys. The typical soil profile for the Kina series comprises Kina peat on a northeast facing slope of 5 percent under muskeg vegetation.

Golden Soil Series

The Golden Soil Series consists of shallow, very poorly drained soils formed in glacial drift, underlain by phyllite bedrock at depths of less than 20 inches (KPU 1992). These soils occur on backslopes, footslopes and toeslopes of infrequently dissected smooth mountain slopes, broken mountain slopes and hillslopes. The typical soil profile for the Golden Soil Series is very fine golden sandy loam and occurs on an east-southeast facing shoulder of a bench of 28 percent slope, under non-commercial forest vegetation (KPU 1992).

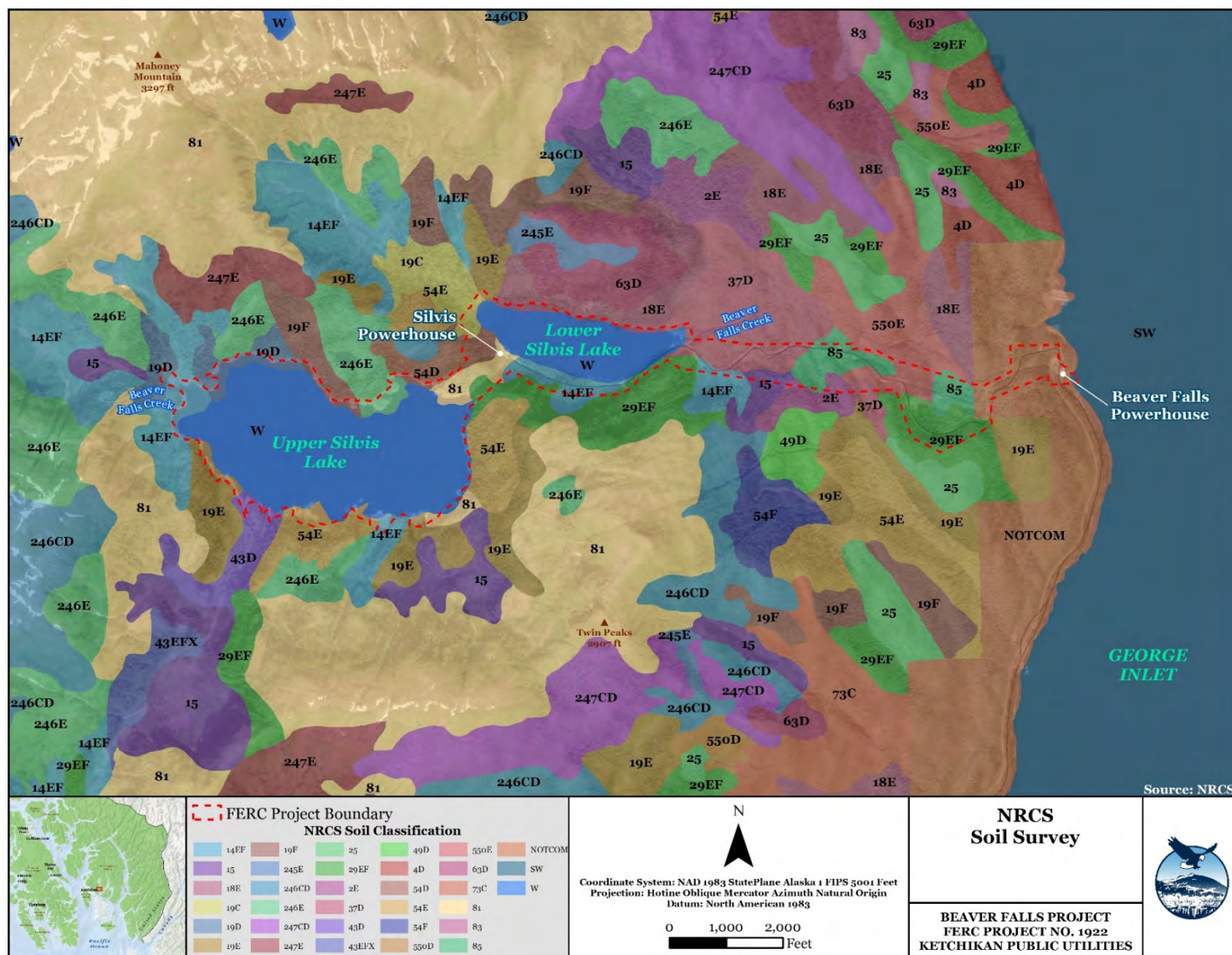


FIGURE 6-2 USDA NRCS SOIL SURVEY

TABLE 6-1 USDA NRCS SOIL SERIES KEY

NRCS SOIL CLASSIFICATION MAP UNIT SYMBOL	NRCS SOIL CLASSIFICATION MAP UNIT NAME	PERCENT SLOPE	DRAINAGE AND RUNOFF CHARACTERISTICS	EROSION FACTOR K(w)
14EF	Shakan sandy loam	60 to 150	Well drained to moderately well drained. Rapid runoff.	0.15 -0.28
15	Cryorthents	0 to 100	Well drained. Very rapid runoff.	0.1
18E	Hofstad peat	60 to 75	Very poorly drained. Runoff is slow to medium.	0.17-0.37
19C	Helm muck, granitic	5 to 35	Poorly drained. Moderately rapid permeability in the organic matter and moderate in the mineral horizons. Runoff is slow to rapid.	0.28
19D	Helm muck, granitic	35 to 60		0.28
19E	Helm muck, granitic	60 to 75		0.28
19F	Helm muck, granitic	75 to 100		0.28
245E	Hydaburg-Sunnyhay association	60 to 75	Very poorly drained. Slow to rapid runoff.	0.64
246CD	Calamity-Hydaburg-Rock outcrop complex	5 to 60	Moderately well drained. Medium to rapid runoff.	.05-.24
246E	Calamity-Hydaburg-Rock outcrop complex	60 to 75		.05-0.24
247CD	Hydaburg-Rock outcrop complex	5 to 60	Very poorly drained. Very rapid runoff.	0.64
247E	Hydaburg-Rock outcrop complex	60 to 75		0.64
25	Kaikli-Kina association	0 to 40	Very poorly drained. Very rapid runoff.	0.37
29EF	McGilvery peat	60 to 100	Well drained. Very rapid runoff.	0.1
2E	Traitors silt loam	60 to 75	Moderately well drained. Rapid runoff.	0.37-0.55
37D	Golden very fine sandy loam	35 to 60	Very poorly drained. Very rapid runoff.	0.15-0.37

NRCS SOIL CLASSIFICATION MAP UNIT SYMBOL	NRCS SOIL CLASSIFICATION MAP UNIT NAME	PERCENT SLOPE	DRAINAGE AND RUNOFF CHARACTERISTICS	EROSION FACTOR K(w)
43D	Shakan-McGilvery association	35 to 60	Well drained. Very rapid runoff.	0.15-0.28
43EFX	Shakan-McGilvery association	60 to 150		0.1
49D	Kina-Kitkun complex	35 to 60	Very poorly drained. Very rapid runoff.	-
4D	Helm muck	35 to 60	Poorly drained. Very rapid runoff.	0.24-0.37
54D	Tokeen gravelly sandy loam	35 to 60	Well drained. Rapid runoff.	0.24-0.28
54E	Tokeen gravelly sandy loam	60 to 75		0.24-0.28
54F	Tokeen gravelly sandy loam	75 to 100		0.24-0.28
550D	St. Nicholas-Kaikli complex	35 to 60	Poorly drained. Very rapid runoff.	0.05-0.28
550E	St. Nicholas-Kaikli complex	60 to 75		0.05-0.28
63D	Helm, granitic-McGilvery complex	35 to 60	Poorly drained. Very rapid runoff.	0.28
73C	St. Nicholas-Kina complex	5 to 35	Poorly drained. Very rapid runoff.	0.5-0.28
81	Rock outcrop	<i>Not Applicable</i>	Very rapid runoff	-
83	Kina-Grindall complex	0 to 40	Very poorly drained. Very rapid runoff.	-
85	Kina peat	0 to 35	Very poorly drained. Very rapid runoff.	-
NOTCOM	No Digital Data Available	<i>Not Applicable</i>	<i>Not Applicable</i>	-
SW	Salt Water	<i>Not Applicable</i>	<i>Not Applicable</i>	-
W	Water	<i>Not Applicable</i>	<i>Not Applicable</i>	-

Source: USDA 2019

6.1.3.2 EROSION

Table 6-1 includes a summary of the Erosion Factor for each soil identified in the Project area. The erosion Factor “K(w)” quantifies the soil detachment by runoff and raindrop impact. This erodibility factor is an index for predicting the long-term average soil loss and rill erosion. Factor K(w) applies to the whole soil. Values of K range from the lowest erodibility, 0.02, to the highest, 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. Based on the soils mapped in the Project area, the soils range from slight susceptibility to sheet and rill erosion potential (USDA 2019).

6.1.3.3 RESERVOIR SHORELINES

The shoreline along the head and sides of both Upper and Lower Silvis Lakes is steep, with talus or forested slopes. At the foot of both lakes, the shoreline is more gently sloped. The reservoir shorelines are exposed during periods of increased drawdown. This condition is more prevalent in Upper Silvis Lake than Lower Silvis Lake because capacity in Upper Silvis Lake is used before capacity in Lower Silvis Lake. This drawdown exposes unconsolidated glacial and alluvial material compacted in granitic soil to changing water levels and erosional forces that would not exist in a constant pool. The shoreline along Lower Silvis Lake is more established due to operating at a fairly consist water level to maximize generation.

As the water level in Upper Silvis Lake may fluctuate throughout the year, the stability of the shoreline may be reduced because of the exposed shoreline and reduced vegetation.

The predominant sources of shoreline instability on Lower Silvis Lake are the steep talus slopes of the south shore. Historical mass land movement along the Lower Silvis Lake shoreline has been documented. On November 28, 1969, following a period of unusually heavy rain, the Silvis Powerhouse was engulfed in a landslide and destroyed (CD 1970). Slide debris also struck the penstock. The landslide material was composed primarily of talus deposits, with minor amounts of fill and slope wash debris. Sliding occurred along the talus deposit-bedrock interface (CD 1970). A 1970 landslide investigation report concluded that supersaturation of the talus slopes and erosion were likely the cause of the slide (CD 1970).

6.1.3.4 ACCESS ROAD/TRAIL

Access from the Beaver Falls Powerhouse to Lower Silvis Lake is via an unpaved, unimproved access road. The access road was upgraded in 1992 up to Silvis Powerhouse. The access road crosses many talus slopes, snow avalanche paths, and side hill drainage areas along Lower Silvis Lake. This section of the road has been closed off at times due to snow and rock avalanches, requires constant maintenance, and presents a danger to public vehicular access. More routinely, in some areas, downslope erosion has narrowed the road to the extent where vehicle passage is difficult.

During a May 2019 site visit site indicators of slope instability were identified east of Lower Silvis Lake, including visible slide debris, recently downed trees above the access road, trees with curved trunks at the base indicating soil creep, and loose saturated soils.

During the site visit a recent large slide event (<5 years old) was identified approximately ¾-mile east of the Lower Silvis Dam. The landslide debris and landslide scarp were visible above and below the access road. The identified slide originated above the access road and terminated approximately 600 feet downslope of the access road. The slide debris terminated less than 200 feet from the penstock carrying water to the Beaver Falls powerhouse.

6.1.3.5 PENSTOCK

The rock slopes along the 42-inch penstock located on the steep slope below the Tunnel No. 2 are subject to sliding (KPU 1992). Converse Consultants (1990) identified several sets of well-defined joints in the bedrock that dipped toward the penstock from the south and the north and were undercut during the excavation for the penstock. These identified joints have formed several potentially unstable, large rock masses which have the potential of falling onto the penstock and causing extensive damage or even a rupture of the penstock. Portions of the exposed penstock have been covered with gravel as a protective measure.

6.1.4 REFERENCES

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6.2 WATER RESOURCES

6.2.1 DRAINAGE AREA

Upper Silvis Lake has a drainage area of approximately 3.4 square miles, and Lower Silvis Lake has a drainage area of 4.6 square miles. The total drainage area of the Beaver Falls Creek basin is approximately 7.2 square miles (FERC 1994).

6.2.2 STREAMFLOW, GAGE DATA, AND FLOW STATISTICS

As a river gage is not present within the local Project area, river flow data for the Beaver Falls Project is estimated using hydrology calculations that have previously been completed at the site.

Hydrologic data from 1921 to 1932 and 1956 to 1965 is available from the Application for New License for the Beaver Falls Hydroelectric Project (KPU 1992) and from 1989 to 2003 from the Beaver Falls Hydroelectric Plant Analysis of Upgrade Options (Hatch Acres 2007). A comparison of the two data sets was completed and they were found to generally align well. An average of the two data sets was used to develop mean inflow estimates for Upper Silvis Lake, Lower Silvis Lake, and the Beaver Falls Powerhouse (Table 6-2). The mean low flow in Upper Silvis Lake is 42.1 cfs in March and the mean high flow in Upper Silvis Lake is 95.9 cfs in June. The annual mean flow in Upper Silvis Lake is 64.7 cfs. The annual flow duration curve developed for the Project's 1992 re-licensing effort is provided in Appendix F.

TABLE 6-2 MEAN RIVER FLOWS (CFS) BY MONTH FOR THE UPPER SILVIS LAKE, LOWER SILVIS LAKE, AND BEAVER FALLS POWERHOUSE.

MONTH	UPPER SILVIS LAKE MEAN INFLOW (CFS)	LOWER SILVIS LAKE MEAN INFLOW (CFS)	BEAVER FALLS POWERHOUSE MEAN INFLOW (CFS)
January	48.8	18.2	14.5
February	43.7	16.1	13.6
March	42.1	18.6	13.7
April	51.4	17.8	14.0
May	94.35	25.6	18.6
June	95.9	24.6	15.2
July	65.8	21.9	12.9
August	55.8	26.1	16.7
September	67.9	26.2	17.9
October	85.05	25.65	18.9

MONTH	UPPER SILVIS LAKE MEAN INFLOW (CFS)	LOWER SILVIS LAKE MEAN INFLOW (CFS)	BEAVER FALLS POWERHOUSE MEAN INFLOW (CFS)
November	68.95	24.55	17.8
December	56.45	19.1	13.9
Annual	64.7	22.05	15.7

Source: KPU 1992 & Hatch Acres 2007

In addition, KPU tracks weekly seepage from the Upper Silvis and Lower Silvis dams. Seepage is recorded at weirs located directly downstream of both dams. Seepage flows are heavily influenced by surface runoff in the area and can also be used as a point of reference that depicts the amount of water available and flowing within the Project area system. Table 6-3 depicts the monthly average flows recorded at the Upper Silvis Weir and the Lower Silvis Weir from 1990-2018. This data is considered a high-level summary and/or point of reference, as for several years KPU only recorded flow at the Upper Silvis Weir on dry days. KPU now records readings regardless of precipitation.

TABLE 6-3 AVERAGE SEEPAGE MEASURED AT UPPER SILVIS DAM AND LOWER SILVIS DAM WEIRS 1990-2018

MONTH	AVERAGE OF UPPER SILVIS WEIR (GALLONS PER MINUTE)	AVERAGE OF LOWER SILVIS WEIR (GALLONS PER MINUTE)
January	71	563
February	24	419
March	65	476
April	39	417
May	19	399
June	13	372
July	15	394
August	23	392
September	33	469
October	38	454
November	43	449
December	50	498
Average	27	425

6.2.3 EXISTING AND PROPOSED USES OF WATER

Project waters are used primarily for power production as well as for recreation, aquatic habitat, and wildlife habitat. KPU does not currently propose to modify water uses of the Project under a new license.

KPU is authorized by the State of Alaska to divert water from Upper Silvis Lake to Beaver Falls Creek exclusively for hydropower generation. All water diverted for hydropower generation is ultimately released into George Inlet. The State of Alaska issued Certificate No. 536 on August 19, 1970 that authorized KPU to use 74,289,000 gallons of water daily from Beaver Falls Creek for the purposes of producing hydroelectric power. In addition, on July 15, 1993, the State of Alaska authorized KPU to use 63,339,066 gallons of water per day from Upper Silvis Lake (Certificate No. 44079).

6.2.4 EXISTING INSTREAM FLOW USES AND WATER RIGHTS

KPU holds Certificate ADL 44079, which was issued as a superseding certificate to KPU's original Certificate 536 with the same purpose, priority date, appurtenant location, source, and amount of water rights for "Silvis Lakes". Notably, the certificate grants a water right to both lakes (plural) and continues to be recognized by ADNR to grant the right to convey waters from both Upper and Lower Silvis Lakes for the purpose and in the amount specified in the right (although if the right were issued today, ADNR would require separate rights for the two lakes (pers. comm. Carl Reese, ADNR, March 18, 2019)).

Certificate #536 is dated August 19, 1970 and recognizes beneficial use beginning in "1945" (no day or month), prior to Statehood. It grants KPU the right to use 74,289,000 gallons per day, or approximately 115 cfs, for the purpose of "hydropower power". The location of the water source to which the water right is granted is "Silvis Lakes" appurtenant to Beaver Falls power plant, with specific reference to the "concrete dam and water intake structures". Reference is made to two sets of TSR coordinates (SE ¼ of NE ¼ of Section 12 T75S, R91E, and NW ¼ of SW ¼ of Section 8, T75S, R92E, CRM).

ADNR records also identify an application for Silvis Lake (LAS 14351), which ADNR believes was occasioned by plans for a fish hatchery planned in association with the previous relicensing of the Beaver Falls project in the 1990s. ADNR believes that application was abandoned, and the case file closed in 1998, but has been unable to locate the files (pers. comm. Carl Reese, ADNR, March 18, 2019).

There are no water rights recorded for Beaver Falls Creek held by any party and no other water rights recorded for KPU. ADNR records also identify a certificate for 75 gpd held by the USFS

located on the west end of Lower Silvis Lake. ADNR believes that this water right was associated with an old cabin used for recreational purposes, now abandoned (pers. comm. Carl Reese, ADNR, March 18, 2019).

6.2.5 RESERVOIR INFORMATION

The normal maximum water surface elevation of Upper Silvis Lake is 1,154 feet msl with a surface area of 300 acres and a gross storage capacity of approximately 38,000 acre-feet. The minimum water surface elevation is 1,055 feet msl. The usable storage capacity between the normal maximum and minimum water surface elevations is 22,000 acre-feet (KPU 2018). Upper Silvis Lake has a maximum depth of approximately 400 feet (FERC 1994).

The normal maximum water surface elevation of Lower Silvis Lake is 827 feet msl, the surface area is 67.5 acres, and the gross storage capacity is approximately 8,052 acre-feet (KPU 2018). The minimum water surface elevation is 802 feet msl. The usable storage capacity between the normal maximum and minimum water surface elevations is 1,600 acre-feet. Lower Silvis Lake has a maximum depth of approximately 167 feet (FERC 1994).

6.2.6 GRADIENT OF DOWNSTREAM REACHES

The elevation drops approximately 800 feet between Lower Silvis Lake and George Inlet (approximately 7,000 feet) or about 11 percent. The outflow from the Beaver Falls Powerhouse flows directly into George Inlet in the North Pacific Ocean.

6.2.7 FEDERALLY-APPROVED WATER QUALITY STANDARDS

As required by Section 401(c) of the Clean Water Act, on October 22, 1992 KPU applied to the ADEC for a 401(c)-water quality certification of the Beaver Falls Project (ADEC 1992). ADEC received KPU's Request for Certification on October 22, 1992 and after one (1) year ADEC had not processed the request. The water quality certificate requirement for this Project was therefore deemed waived in accordance with Section 4.38(f)(7)(ii) of ADEC's regulations (FERC 1994).

General protected water use classes, criteria, and standards have been established by ADEC under Alaska Administrative Code (AAC) 18 AAC 70.020 (ADEC 2018). Based on the uses of Beaver Falls Project waters, the applicable state water classifications are (1)(A), (1)(B), and (1)(C). The protected water classifications are defined as:

- (1)(A) – Fresh water used for water supply, including drinking, aquaculture, and industrial uses
- (1)(B) – Fresh water used for water recreation, including both contact recreation and secondary recreation
- (1)(C) – Fresh water used for the “growth and propagation of fish, shellfish, other aquatic life, and wildlife”

Beaver Falls Creek has not been classified for any specific beneficial uses by the State of Alaska and is automatically protected under the State of Alaska water quality standards for all classes under Alaska’s antidegradation policy (ADEC 2018). As stated in the ADEC water quality standards, if a waterbody is protected for more than one use class under 18 AAC 70.050, the most stringent water quality criteria for all the included use classes will apply (ADEC 2018). For this Project, the classification (1)(C) is typically the most stringent and is therefore used for establishing water quality standards.

Project specific water quality criteria for 1(C) waters are listed in the Table 6-4:

TABLE 6-4 WATER QUALITY CRITERIA FOR CLASS 1(C) WATERS

POLLUTANT/USE	CRITERIA (18 AAC 70.020)
<ul style="list-style-type: none"> • Color 	(1)(C) - For all waters without a seasonally established norm for aquatic life, color or apparent color may not exceed 50 color units or the natural condition, whichever is greater.
<ul style="list-style-type: none"> • Bacteria (fecal coliform) 	(1)(B) - In a 30-day period, the geometric mean of samples may not exceed 126 <i>Escherichia coli</i> (<i>E. coli</i>) colony forming units (CFU)/ 100ml, and not more than 10% of the samples may exceed a statistical threshold value (STV) of 410 <i>E. coli</i> CFU/100 ml. (1)(C) - Not applicable.
<ul style="list-style-type: none"> • Dissolved gas (D.O.) 	(1)(C) - D.O. must be greater than 7 mg/l in waters used by anadromous or resident fish. In no case may D.O. be less than 5 mg/l to a depth of 20 cm in the interstitial waters of gravel used by anadromous or resident fish for spawning. In no case may D.O. be greater than 17 mg/l. The concentration of total dissolved gas may not exceed 110% of saturation at any point of sample collection.
<ul style="list-style-type: none"> • Dissolved inorganic substances (total dissolved solids) 	(1)(C) - TDS may not exceed 1,000 mg/l. A concentration of TDS may not be present in water if that concentration causes or reasonably could be expected to cause an adverse effect to aquatic life.
<ul style="list-style-type: none"> • Petroleum hydrocarbons, oils and grease 	(1)(C) - Total aqueous hydrocarbons (TAqH) in the water column may not exceed 15 µg/l. Total aromatic hydrocarbons (TAH) in the water column may not exceed 10 µg/l. There may be no concentrations of petroleum hydrocarbons, animal fats, or vegetable oils in shoreline or bottom sediments that cause deleterious effects to aquatic life.

POLLUTANT/USE	CRITERIA (18 AAC 70.020)
	Surface waters and adjoining shorelines must be virtually free from floating oil, film, sheen, or discoloration.
<ul style="list-style-type: none"> • pH 	(1)(C) - May not be less than 6.5 or greater than 8.5. May not vary more than 0.5 pH unit from natural conditions.
<ul style="list-style-type: none"> • Radioactivity 	(1)(C) - Concentration factors for organisms involved may not exceed maximum permissible limits for specific radioisotopes and unidentified mixtures as established by 10 C.F.R. 20 and National Bureau of Standards, <i>Handbook 69</i> .
<ul style="list-style-type: none"> • Residues 	(1)(C) - Residues are not allowed in surface waters of the state, in concentrations or amounts that have the following effects <ul style="list-style-type: none"> • may impair designated uses; • cause nuisance or objectionable conditions; • result in undesirable or nuisance species; or • produce objectionable odor or taste.
<ul style="list-style-type: none"> • Sediment 	(1)(C) - The percent accumulation of fine sediment in the range of 0.1 mm to 4.0 mm in the gravel bed of waters used by anadromous or resident fish for spawning may not be increased more than 5% by weight above natural conditions (as shown from grain size accumulation graph). In no case may the 0.1 mm to 4.0 mm fine sediment range in those gravel beds exceed a maximum of 30% by weight (as shown from grain size accumulation graph). In all other surface waters, no sediment loads (suspended or deposited) that can cause adverse effects on aquatic animal or plant life, their reproduction or habitat may be present.
<ul style="list-style-type: none"> • Temperature 	(1)(C) - May not exceed 20° C at any time. The following maximum temperatures may not be exceeded, where applicable: migration routes (15° C), spawning areas (13° C), rearing areas (15° C), egg & fry incubation (13° C). For all other waters, the weekly average temperature may not exceed site-specific requirements needed to preserve normal species diversity or to prevent appearance of nuisance organisms.
<ul style="list-style-type: none"> • Toxic and other deleterious organic and inorganic substances 	(1)(C) - The concentration of substances in water may not exceed the numeric criteria for aquatic life for fresh water and human health for consumption of aquatic organisms only shown in the <i>Alaska Water Quality Criteria Manual</i> , or any chronic and acute criteria established in this chapter, for a toxic pollutant of concern to protect sensitive and biologically important life stages of resident species of this state. There may be no concentrations of toxic substances in water or in shoreline or bottom sediments, that, singly or in combination, cause, or reasonably can be expected to cause, adverse effects on aquatic life or produce undesirable or nuisance aquatic life, except as authorized by this chapter. Substances may not be present in concentrations that individually or in combination impart undesirable odor or taste to fish or other aquatic organisms, as determined by either bioassay or organoleptic tests.
<ul style="list-style-type: none"> • Turbidity 	(1)(C) - May not exceed 25 NTU above natural conditions. For all lake waters, may not exceed 5 NTU above natural conditions.

Source: ADEC 2018

6.2.8 EXISTING WATER QUALITY INFORMATION

Water quality in the Upper and Lower Silvis Lakes and in Beaver Falls Creek has historically been excellent based on water quality criteria established by the ADEC under 18 AAC 70.020 (ADEC, 2018). Based on the uses and water quality criteria, the applicable state water classification for the Project waters is (1)(C). Historical data obtained during the 1992 relicensing effort indicated that the Project's water quality parameters generally met or exceeded state standards for (1)(C) waters.

Water samples were collected on July 30, 1990 from the epilimnion and hypolimnion in both Upper and Lower Silvis Lakes (KPU 1990). Temperature, dissolved oxygen, and pH profiles were analyzed in the Upper and Lower Silvis Lakes at a depth of 30 meters deep in each lake. An additional water sample was collected from Beaver Falls Creek about ¼-mile upstream from where it flows into the George Inlet. The monitoring demonstrated that the Beaver Falls Creek system was an oligotrophic environment with low nutrient levels (nitrogen and phosphorus), low algal productivity, and very good water clarity (parameters met or exceeded currently defined Class 1(C) waters) (KPU 1990). The water quality is typical of streams draining montane watersheds in southeastern Alaska. Additionally, the July 1990 data collected from the Upper and Lower Silvis Lakes and Beaver Falls Creek indicated low levels of conductivity, alkalinity, and a neutral to slightly acidic pH indicative of waters that are low in dissolved solids and have little bicarbonate buffering capacity. The monitoring also demonstrated that Project waters were well-oxygenated with dissolved oxygen levels ranging from 9.1 to 11.4 milligrams per liter (mg/L). Water temperature remained cool year round (less than 68 degrees F) but the water temperature in Upper Silvis Lake does stratify in the summer months (KPU 1990).

Discussion of monitored parameters from the July 1990 monitoring of Project waters is provided in the text and Table 6-5 below:

Temperature:

Water temperature at the Beaver Falls Creek station was 15 degrees C. At Upper Silvis Lake, water temperature ranged from 18.9 degrees C at the surface to 3.5 degrees C at a depth of 30 meters. At Lower Silvis Lake, water temperature ranged from 11.5 degrees C at the surface to 5.5 degrees C at a depth of 30 meters.

Dissolved Oxygen:

The Upper Silvis Lake monitoring demonstrated well-developed stratification and increased dissolved oxygen concentrations with depth, suggesting 1) minimal hypolimnetic biological oxygen demand; and 2) dissolved oxygen concentrations generally conformed to temperature driven saturation values. The Lower Silvis Lake demonstrated much weaker stratification of dissolved oxygen, with relatively uniform dissolved oxygen concentrations with depth. Both profiles indicate very satisfactory dissolved oxygen concentrations for fish at all depths profiled.

Clarity:

During the 1990 monitoring event a Secchi disc reading for clarity was made in each of the Silvis Lakes. Visibility in the Upper Silvis Lake was 47 feet and visibility in the Lower Silvis Lake was 48.5 feet. The Secchi transparency values are indicate of good water clarity and low algal productivity in both Upper and Lower Silvis Lakes.

Other General Chemistry Parameters:

Concentrations of nutrients, including nitrogen, phosphorus, and chlorophyll a were generally at or below limits of laboratory detection during the 1990 monitoring (KPU 1990). Values for conductivity, alkalinity, and pH for both Upper and Lower Silvis Lakes indicate low dissolved salts concentrations, marginal bicarbonate buffering capacity, and marginal pH. Such values are characteristic of montane fresh waters in Alaska and attributable to the natural geohydrology and chemistry of the area.

TABLE 6-5 1990 WATER QUALITY MONITORING RESULTS

BEAVER FALLS CREEK AND UPPER AND LOWER SILVIS LAKES SYSTEM WATER QUALITY MONITORING RESULTS JULY 30, 1990						
Parameter	Units	Lake and Stream Sampling Stations				
		US-1	US-12	LS-1	LS-12	BFC
Temperature	deg C	--	--	--	--	15
Dissolved Oxygen	mg/L	--	--	--	--	9.4
Ammonia Nitrogen	mg/L	0.03	<0.01	0.02	<0.01	<0.01
NO ₃ & NO ₂ Nitrogen	mg/L	<0.01	0.01	0.02	0.01	<0.01
Total Kjeldahl Nitrogen	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Ortho Phosphorus	mg/L	0.03 ¹	<0.005	<0.005	<0.005	<0.005
Total Phosphorus	mg/L	<0.010	<0.010	0.010	<0.010	<0.010
Conductivity	umhos/cm	11	13	11	11	12
Total Alkalinity as CaCO ₃	mg/L	3	<2	2	2	2
pH ²	-log[H ⁺]	7.0	5.3	6.3	6.3	6.5
Total Suspended Solids	mg/L	7	8	12	6	6
Chlorophyll (a)	mg/m ³	<1	--	<1	--	--
Secchi Transparency	meters	14.3	--	14.8	--	--
¹ (1) Questionable value; sample contamination likely. ² (2) Laboratory values; field pH measurements questionable. US-1 Upper Silvis Lake@ 1 meter depth US-12 Upper Silvis Lake@ 12 meter depth LS-1 Lower Silvis Lake@ 1 meter depth LS-12 Lower Silvis Lake@ 12 meter depth BFC Beaver Falls Creek below reservoirs						

Source: KPU 1990

6.2.9 REFERENCES

- Alaska Department of Environmental Conservation (ADEC). 1992. Ketchikan Public Utilities, Beaver Falls Hydroelectric Project - FERC Project No. 1922 Request for 401 Certification. October 22, 1992.
- Alaska Department of Environmental Conservation (ADEC). 2018. 18 AAC 70 Water Quality Standards. April 6, 2018.
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6.3 FISH AND AQUATIC RESOURCES

6.3.1 AQUATIC HABITATS

The Beaver Falls Project area includes Upper Silvis Lake, Lower Silvis Lake, and Beaver Falls Creek, all located within TNF. Flows from the Beaver Falls Powerhouse are discharged into George Inlet, an estuary that connects to the Gulf of Alaska and the greater Pacific Ocean.

6.3.1.1 UPPER SILVIS LAKE

Upper Silvis Lake has a surface area of 300 acres and a depth of approximately 400 feet, resulting in a gross storage capacity of approximately 38,000 acre-feet (FERC 1994). Upper Silvis Lake is drafted beginning in November to meet winter energy needs. Maximum drawdown of the lake is about 62 feet, which generally occurs in April before the spring runoff is able to refill the lake. The intake tunnel within Upper Silvis Lake is located 96 feet below the normal maximum lake surface.

The rocky, sloping shoreline of Upper Silvis Lake is largely unsuitable for aquatic vegetation or fish spawning habitat. However, a few small tributaries punctuate the shoreline and offer some limited spawning and rearing habitat for a resident trout population. While streams can produce heavy runoff during the rainy season and freshet, instream protection and cover for fish is provided by boulders, organic debris, and bedrock formations. Spawning gravels are likely present as small bars and isolated pockets behind boulders that occur throughout the tributaries (KPU 1990). Streams may also provide additional food sources (e.g., adult, juvenile, and larval insects). Within the oligotrophic lake, shallow benthic habitats exist within a very narrow littoral zone around most of the lake's perimeter.

6.3.1.2 LOWER SILVIS LAKE

Lower Silvis Lake is connected to Upper Silvis Lake via an 800-foot-long concrete apron spillway channel (only passes water when flows exceed elevation 1,154-feet msl) and 150 foot trapezoidal-shaped channel tailrace. Lower Silvis Lake has a surface area of 67.5 acres, maximum depth of approximately 167 feet, and a storage capacity of 8,052 acre-feet (KPU 2018).

The lake provides an oligotrophic environment very similar to Upper Silvis Lake. Although the shoreline is more heavily forested, the steep slopes below the waterline limit aquatic vegetative growth. Larger tributaries drain into Lower Silvis Lake which provide boulder, woody debris, and bank habitats. Existing fish populations likely exist within a very narrow, littoral zone, with the majority of habitat contained within or near tributaries (Hubbart and Bingham 1989).

6.3.1.3 BEAVER FALLS CREEK

Beaver Falls Creek stretches almost two miles from Lower Silvis Lake to George Inlet. The creek outlet is located approximately 900-feet north of the Beaver Falls Powerhouse and has an approximate 40-foot-high falls at the tidewater (Photo 6-1). The falls at Beaver Falls Creek have precluded the establishment of any natural run of anadromous salmonids in the system (KPU 1992). However, the stream is presently classified as anadromous by the ADFG because chum and pink salmon are present at the mouth of the river (below the falls barrier) as described in the anadromous waters catalogue (AWC⁴). Recent communications with ADFG and NOAA confirm that the steep, natural gradient of the falls continue to preclude the establishment of an anadromous fish run past the falls (pers. comm. Kevin Keith, ADFG, August 28, 2018; pers. comm. Susan Walker, NOAA, March 27, 2019).

⁴ AWC code: 101-45-10120



PHOTO 6-1 BEAVER FALLS CREEK FALLS AT TIDEWATER

6.3.1.4 GEORGE INLET

George Inlet is an estuary that connects several Revillagigedo Island rivers to the Gulf of Alaska and Pacific Ocean. This estuary provides an abundance of habitat, including marsh, lagoon, seagrass (*Zostera marina*), and rocky intertidal zones that are utilized by migrating populations of salmonids. Additionally, George Inlet provides juvenile and adult sand flat and seagrass habitat used by the Pacific halibut (*Hippoglossus stenolepis*).

6.3.2 ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act requires consultation with NOAA's National Marine Fisheries Services (NMFS) regarding actions that "may adversely

affect” Essential Fish Habitat (EFH) for federally managed marine and anadromous fish species. EFH is defined as “those waters and substrates necessary for fish spawning, breeding, feeding, or growth to maturity.” Marine EFH in Alaska includes estuarine and marine areas from tidally submerged habitat to the 200-mile exclusive economic zone. Freshwater EFH includes streams, rivers, lakes, ponds, wetlands, and other bodies of water currently and historically accessible to salmon. In Alaska, EFH is officially designated within Fishery Management Plans maintained by NMFS and the North Pacific Management Council (NMPC).

6.3.2.1 UPPER SILVIS LAKE AND LOWER SILVIS LAKE EFH

Neither Upper Silvis Lake nor Lower Silvis Lake contain any designated EFH (NPMC 2012).

6.3.2.2 BEAVER FALLS CREEK EFH

NOAA’s NMPC relies heavily on the ADFG’s AWC to designate EFH for Alaskan salmonids (NPMC 2012). While a small portion of Beaver Falls Creek is designated within the ADFG’s AWC, online mapping tools do not include it within NOAA’s EFH layers (NMFS 2018). As afore noted, the falls at Beaver Falls Creek have precluded the establishment of any natural run of anadromous salmonids in the system (KPU 1992); however, the stream is presently classified as anadromous by the ADFG because chum and pink salmon that are present at the mouth of the river, below the tidal barrier.

6.3.2.3 GEORGE INLET EFH

The entirety of Southeast Alaskan coastal waters, including George Inlet, are designated EFH for chum (*Oncorhynchus keta*), pink (*Oncorhynchus gorbuscha*), coho (*Oncorhynchus kisutch*), sockeye (*Oncorhynchus nerka*), and chinook (*Oncorhynchus tshawytscha*) salmon, as they are found in the area during all life stages (ADFG 2019). There are not Habitat Areas of Particular Concern or EFH Areas Protected from Fishing within the Inlet. Additionally, there is no evidence that operation of this facility has impacted EFH in the past or will cause any future harm to EFH (FERC 1994). The operation of the Beaver Falls Project is not expected to adversely affect EFH in George Inlet.

6.3.3 EXISTING FISHERIES ASSEMBLAGE

6.3.3.1 UPPER AND LOWER SILVIS LAKES

Upper and Lower Silvis Lakes support self-sustaining populations of rainbow trout (*Oncorhynchus mykiss*) that endured from previous ADFG stocking efforts in 1954 (Hubburt and Bingham 1989). While the 1992 FERC application indicates cutthroat trout (*Oncorhynchus clarkii*) were also stocked in the lakes during the 1960s, there are no recent records of a surviving cutthroat population. ADFG and KPU caught only rainbow trout during surveys in 1988, 1990, and 1991 in Upper and Lower Silvis Lakes. The estimated population was approximately 144 fish in the lower lake and 227 fish in the upper lake (Hubburt and Bingham 1989). These studies showed a normal distribution of size and age for both Upper and Lower Silvis Lake trout populations, indicating the population, while limited, is stable. No other studies are known.

6.3.3.2 BEAVER FALLS CREEK

Historically, no anadromous or resident fish occurred in Beaver Falls Creek until the establishment through stocking of rainbow trout in the Silvis Lakes (Hubburt and Bingham 1989). Occasionally, rainbow trout are found within Beaver Falls Creek. Trout are believed to enter Beaver Falls Creek when spill flows are released from Lower Silvis Lake over an annual drawdown of about 21 days from February and March (FERC 1994). It is assumed that these fish can maintain a small resident population (Hubburt and Bingham 1989). Currently, no other species of fish are known to inhabit Beaver Falls Creek.

6.3.3.3 GEORGE INLET

Pink salmon have occasionally been observed by KPU within the Beaver Falls Powerhouse tailrace. However, the height difference of the raised elevation of the Powerhouse prevents the fish from entering into the infrastructure.

The chinook, pink, chum, sockeye, and coho salmon and Dolly Varden (*Salvelinus malma*) populations that utilize George Inlet enter the estuary during their annual spawning migrations. On-site and mail surveys conducted in the 1990s place the estimated chinook and coho fall harvest within George Inlet between 9,481-10,123 and 31,104-22,661, respectively (Mills and Howe 1992). Estimates from a roadside catch survey conducted during the same time period

estimate the pink salmon fall harvest at about 6,300 fish (Hubartt 1991). Although population estimates for salmonids were not found for George Inlet in the Beaver Falls Project area, the USFS has determined that salmon populations within the George Inlet and Ketchikan area are generally stable and well-managed (Halupka et al. 2000).

Pacific halibut (*Hippoglossus stenolepis*) have also been caught in high numbers within the Ketchikan and George Inlet area. While halibut do display seasonal migratory behavior, their migrations are much less pronounced than that of the salmonids and therefore these fish are believed to be more resident. Recent mail and in-person survey efforts have shown that this population maintains a healthy, stable stock and is believed to be well-managed (Fall and Koster 2011).

6.3.4 TEMPORAL AND SPATIAL FISHERIES INFORMATION

6.3.4.1 RAINBOW TROUT

Within the lakes, adult rainbow trout likely seek out shallow gravel habitats, present as small bars and isolated pockets behind boulders in the tributaries during late winter/early spring and spawn from late March to early July (NRCS 2000). Females typically dig nests within the silt and deposit eggs that will hatch weeks-months after fertilization. Trout mature between ages 2-3 and may spawn annually or skip some years before spawning again (NRCS 2000). Adult rainbow trout spend most of their lives within the shallow littoral zone and feeding within the tributaries. Previous studies have shown that rainbow trout populations in Lower Silvis Lake not only display a normal length-weight relationship, but also may grow slightly larger than subpopulations in neighboring lakes (Hubbart and Bingham 1989).

6.3.4.2 SALMON

Estuaries, such as George Inlet, provide salmon with a transition zone as they complete their spawning migrations (run) from marine to fresh water. Salmon may spend days to weeks within the estuarine channels as they prepare to enter freshwater. The anadromous salmonid populations that utilize George Inlet typically run from mid-July to mid-September (Halupka et al. 2000). Once in freshwater streams and rivers, females will deposit eggs in several gravel nests, which they dig in deep, fast moving water. Eggs will hatch in late winter or early spring, depending on water temperature and time of spawning. Newly hatched fish live within the gravel until they

have consumed their yolk sacks and then begin their migration to marine waters. The Inlet will again provide habitat to these juveniles as they transition into the Pacific.

6.3.4.3 PACIFIC HALIBUT

Pacific halibut spawn within pelagic Alaskan environments, at depths greater than 300 feet (Fall and Koster 2011). Fertilized eggs hatch in the deep water and develop until larvae are able to drift into an estuary. Juveniles live for about six months within the water column until their left eye moves to the right side of their body and they settle to the sea floor in shallow, coastal and estuarine environments. Some halibut will remain within the estuary while others will migrate southward and eastward into the Gulf of Alaska coastal current. Halibut also move seasonally between shallow and deep waters; mature fish will move to deeper offshore areas in the fall to spawn and return to coastal areas in the early summer to feed.

6.3.5 ENTRAINMENT AND FISH PASSAGE

It is unlikely that continued operation of the Beaver Falls Project will contribute to high risk of entrainments. The intake within Upper Silvis Lake is located at a deep enough depth (invert elevation of 96 feet below the normal maximum lake surface) where entrainment of resident trout species is unlikely. Trashracks at the Lower Silvis Lake intake are coarse and trashracks at the Beaver Falls Creek Diversion intake are also coarse at 1 ¼ inch clear spacing.

Anadromous fish passage from George Inlet to above the tidewater at Beaver Falls Creek is naturally blocked by steep falls. Upstream fish passage is therefore not provided at the Project. During high flows over the Upper Silvis Lake spillway, Lower Silvis Lake spillway, or Diversion Dam, fish may naturally pass between waterbodies.

6.3.6 BENTHIC MACROINVERTEBRATES

No site-specific information is readily available, however, based on observations made in similar environments around the Ketchikan area, possible marine benthic macroinvertebrates within George Inlet are listed in Table 6-6. Potential freshwater macroinvertebrates are discussed in the following sections.

TABLE 6-6 POTENTIAL MARINE BENTHIC MACROINVERTEBRATES PRESENT WITHIN GEORGE INLET (T/E = THREATENED OR ENDANGERED).

TAXON	COMMON NAME	T/E STATUS	HABITAT	PRESENCE	REFERENCE
<i>Paralithodes camtschaticus</i>	Red king crab	No	Shallow coastal waters with flat terrain	Unlikely	Mills 1990
<i>Cancer magister</i>	Dungeness crab	No	Shells/rock, eelgrass, and muddy areas in intertidal zone	Possible	Mills 1990
<i>Chionoecetes bairdi</i>	Tanner crab	No	Nearshore, relatively shallow and flat marine waters	Possible	Mills 1990
Pandalidae	Pandalid shrimp	No	Subtidal zones on soft mud bottom or seagrass	Possible	Mills 1990
<i>Siliqua patula</i>	Giant Pacific octopus	No	Shallow, coastal, and rocky marine waters	Unlikely	High 1976

6.3.7 FRESHWATER MUSSELS

No site-specific information is readily available, however, the high-gradient, bedrock dominated reach and lack of sand/gravel within Upper and Lower Silvis Lakes are unlikely to provide suitable habitat for freshwater mussels (Hovingh 2004; Smith et al. 2005; Nedeau et al. 2009). KPU has not seen evidence of freshwater mussels within the Project area.

6.3.8 AQUATIC INSECTS

No site-specific information is readily available, however, based on observations made in similar environments around the Ketchikan area, possible insect species are listed in Table 6-7.

TABLE 6-7 POTENTIAL AQUATIC INSECTS PRESENT WITHIN PROJECT AREA (T/E = THREATENED OR ENDANGERED).

TAXON	COMMON NAME	T/E STATUS	HABITAT	PRESENCE	REFERENCE
Leptophlebiidae	Prong-gilled mayfly	No	Shallow, slow-flowing or standing water along river margins	Possible	Hudson et al. 2012
Heptageniidae	Flatheaded mayfly	No	Shallow, fast-flowing streams or lakes	Possible	Wipfli et al. 1998
Baetidae	Blue-winged olive	No	Stable springs and streams with gravel and vegetation	Possible	Wipfli et al. 1998
Ameletidae	Comb-mouthed minnow mayfly	No	Pools and shallow slack-water margins of riffles and glides	Possible	Hudson et al. 2012
Nemouridae	Spring Stonefly	No	Clean, flowing streams, rivers, and springs	Possible	Wipfli et al. 1998
Capniidae/ Leuctridae	Winter stonefly	No	Rocks, gravel, and snow within streams or rivers	Possible	Wipfli et al. 1998
Chloroperlidae	Green stonefly	No	Streams with significant current and rocky substrate	Possible	Wipfli et al. 1998
Chironomidae	Non-biting midge	No	Almost any freshwater environment	Possible	Pinder et al. 1995
Acari	Mite	No	In nearly all types of water, close to bottom substrate	Possible	Wipfli et al. 1998
Oligochaeta	Earthworm	No	Burrowed in damp soils along stream and lake banks	Possible	Wipfli et al. 1998
Ephemerellidae	Spiny Crawler mayfly	No	Moderate flowing waters of streams and rivers	Possible	Wipfli et al. 1998
Simuliidae	Black fly	No	Slow moving or still rocky streams and lakes	Possible	Wipfli et al. 1998

6.3.9 AQUATIC INVASIVE SPECIES

No site-specific information is readily available, however, based on observations made in similar environments around the Ketchikan area, possible aquatic invasive species are listed in Table 6-8.

TABLE 6-8 POTENTIAL AQUATIC INVASIVE SPECIES PRESENT WITHIN OR THREATENING THE PROJECT AREA.

TAXON	COMMON NAME	TYPE	ORIGIN	PRESENCE	REFERENCE
<i>Salmo salar</i>	Atlantic Salmon	Anadromous Fish	Northern Atlantic Ocean	Southeast Alaska	ADFG 2019
<i>Caricinus maenas</i>	European Green Crab	Littoral Crab	Northeast Atlantic Ocean	British Columbia	ADFG 2019
<i>Bugula neritina</i>	N/A	Marine Tunicate	Northern European coast	Ketchikan	Jurgens 2018
<i>Botrylloides violaceus</i>	Orange Sheath Tunicate	Marine Tunicate	Western Pacific; Japan	Ketchikan	Simkanin et al. 2016
<i>Phalaris arundinacea</i>	Reed Canarygrass	Wetland Plant	Continental Europe	Southeast Alaska	ADFG 2019

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6.4 WILDLIFE RESOURCES

6.4.1 WILDLIFE RESOURCES AND HABITATS IN THE PROJECT VICINITY

Southeast Alaska has a high level of endemic species due to its historic isolation, ecological complexity, and narrow topography (Tongass National Forest 2014; Macdonald and Cook 2007 Cook et. al. 2006). The TNF encompasses the majority of the southeastern panhandle of Alaska and supports a variety of wildlife species including mammals, shorebirds, raptors, songbirds, marine mammals, and fish (see Section 6.3 Fish and Aquatic Resources for more detail).

Habitats in the Project vicinity include forested areas, shrubs, coastal shorelines, and lakes; see Section 6.6 Upland Botanical Vegetation and Section 6.7 Riparian, Wetland, and Littoral Resources for more detail on vegetation communities present. Common species found in the Project area include Sitka black-tail deer (*Odocoileus hemionus sitkensis*), black bear (*Ursus americanus*), mountain goats (*Oreamnos americanus*), and Alexander Archipelago wolves (*Canis lupus ligoni*). Other wildlife found in the area include small mammals, waterfowl, seabirds, hawks, toads, and newts.

6.4.2 TEMPORAL AND SPATIAL DISTRIBUTION OF WILDLIFE RESOURCES

Within Southeast Alaska, 82 animal species and 116 subspecies have been documented by scientists (MacDonald and Cook 2007). Of these, around 20 percent of the mammal tax are endemic to Southeast Alaska (MacDonald and Cook 2007). Common wildlife includes large and small mammals, birds, and amphibians.

6.4.2.1 LARGE MAMMALS

Large mammals in the Project area include the Sitka black-tailed deer, black bear, mountain goats, and Alexander Archipelago wolf. The Sitka black-tailed deer is native to forests of Southeast Alaska and is an important prey species for black bear and wolves. Winter snow depth and severity limits deer population numbers and their distribution, productivity, and survival. Sitka black-tailed deer pellet-group survey data from ADFG population studies have documented decreased population numbers since 2007 most likely due to periodic above average snowfall that has occurred in that same timeframe (McCoy 2017). Sitka black-tailed deer forage in summer for herbaceous vegetation, green woody plants, and evergreen forbs to survive the winter. The Sitka black-tailed deer may be found at higher elevations around the Project,

however the steep terrain and high snowfall in the Project area most likely limit the winter use of the Project area for deer. Deer hunting occurs in the Project vicinity.

Black bear are found throughout TNF. Black bears move between low elevation foraging areas in the spring; and higher elevation forested areas in alpine and subalpine areas in the winter (ADFG 2019a). Population studies for black bears have not been conducted in Game Management Unit (GMU) 1A, where the Project area is located (There are 26 GMUs that cover the State of Alaska.). In the Project area, black bear is most likely to be found at higher elevations, but can occur throughout the Project area, depending on the season (KPU 1992).

Mountain goats are found in the Cascade and Rocky Mountains of Northwest American (Fox et. al. 1989). In southeast Alaska, the species is found primarily in the Chugach and Wrangell Mountains, with few found in the Talkeetna Mountains (ADFG 2019a). Mountain goats have been introduced to several of the southeast Alaska panhandle islands including 17 goats to Revillagigedo Island in 1983 (Fox et. al. 1989; ADFG 2019a). Mountain goats have now established a permanent population on Revillagigedo Island. They summer in subalpine and alpine zones and winter below tree line in forested areas. Mountain goat winter habitat and forage is limited by heavy snowfall, which plays a key role in regulating mountain goat population numbers from year to year. Hunting for mountain goat (by permit only) occurs in the Project vicinity.

The Alexander Archipelago wolf is an endemic subspecies of grey wolf that is found in the mainland and island forests of southeast Alaska (Smith 2016). Sitka black-deer are a key element to the Alexander Archipelago wolf diet, due to the lack of other ungulate prey species in the coastal forests of Southeast Alaska. These wolves also prey on mountain goats, small mammals, and salmon, and will scavenge at times. On Revillagigedo Island, studies have shown pack sizes range from 2 to 12 wolves, with the pack usually containing one breeding pair and offspring (UFWS 2015). The wolves can disperse long distances to join a new pack or reoccupy vacant territory, and swim between nearby islands (UFWS 2015). The Alexander Archipelago wolves have been observed in a variety of habitats, with their population numbers varying with prey population levels.

Per a review of the Project area by the Alaska Natural Heritage Program for state-listed rare, threatened, and endangered species, the Alexander Archipelago wolf is identified as a state rare (S3⁵) species (AKNHP 2019). The Program review identified that a high abundance of wolves (1 per 45-65 square kilometers) occurs on Revillagigedo Island. The Island is known to have the most abundant population of wolves within their overall range of Southeast Alaska (AKNHP 2019).

6.4.2.2 SMALL MAMMALS

Southeast Alaska has several small mammal species including bats, beavers, ermine, martens, mice, voles, flying squirrels, shrews, and marmots. Many of these are endemic to Southeast Alaska including ermine, marten, Northern flying squirrel, southern red-backed vole, long-tailed vole, Sitka tundra vole, Admiralty Island meadow vole, Keen's mouse, Revillagigedo Island meadow jumping mouse, Montane shrew, Glacier Bay water shrew, Admiralty Island Beaver, and Glacier Bay marmot (ADFG 2015). In the Project area small mammals may occur along waterways, and in the forested, shrub, and coastal habitats of the Project area. Specific animals identified as potentially occurring in the Project area based on ADFG range maps include little brown bat, Silver-haired bat, Beaver, ermine, American marten, muskrat, Northern flying squirrel, red squirrel, and wolverine (ADFG 2019). Many of these species are associated with the forested lands and waterways in the Project area.

6.4.2.3 BIRDS

There are approximately 236 bird species that are found regularly in Southeast Alaska with many of these being migratory bird species (USFS 2017). Common bird species found in Southeast Alaska based on the ADFG range maps include Chestnut-backed Chickadee, sandhill crane, American dipper, Harlequin duck, bald and golden eagles, sooty grouse, yellow-billed loon, marbled murrelet, osprey, willow ptarmigan, raven, woodpeckers, and sparrows. Migratory and non-migratory birds likely use habitat within the Project area for feeding, nesting, mating, or as a travel corridor. Habitats for birds on Revillagigedo Island include coniferous forests, shrub understories, open muskegs, and marine waters. The TNF is home to the world's largest concentration of bald eagles, which are very often observed in and around Ketchikan (Heinl and

⁵ S3 Ranking = A state species ranking for rare or uncommon species in the state (21-100 occurrences).

Piston 2009). Bald eagle habitat includes coastlines, shorelines, and old-growth forests close to water.

6.4.2.4 AMPHIBIANS

Limited surveys for amphibians have been conducted in the southeast panhandle of Alaska (ADFG 2015). Habitat for the Columbia Spotted Frog (*Rana luteiventris*), roughskin newt (*Taricha granulosa*), Northwest salamander (*Ambystoma gracile*), and Western toad (*Bufo boreas*) is found in southeast Alaska. The roughskin newt and Western toad have been observed on Revillagigedo Island based on historic specimens and literature (Macdonald and Cook 2007; ADFG 2019). These species are found in a variety of terrestrial and aquatic habitats depending on life stage and season. In their terrestrial phase, roughskin newt uses a variety of habitats adjacent to aquatic areas and where there is cover under rocks, logs, and other features including forest, woodlands, grasslands, open valley, and ranchlands (ADFG 2019). In their aquatic phase, roughskin newts use permanent bodies of water with little to no current and abundant vegetation cover (ADFG 2019). Western toads use a broad range of habitats and can hibernate up to seven months of the year in natural chambers or burrows in forested areas located adjacent to streams (ADFG 2019).

6.4.3 INVASIVE WILDLIFE SPECIES

Invasive species are defined as those that are both non-native to a particular ecosystem and whose introduction causes or is likely to cause economic or environmental harm, or harm to human health (Executive Order 13112). Historically, Alaska's low population, harsh climate, and remoteness have limited establishment of invasive wildlife species; however invasive wildlife species have been documented as occurring, especially in more populated areas and near ports with high volume marine traffic (ADFG 2002). The ADFG has published a list of 16 invasive wildlife species of concern (Table 6-9) (ADFG 2019b). These include the Pacific chorus frog (*Pseudacris regilla*), which has been introduced to Revillagigedo Island near Ward Lake but appears to still remain restricted to the pond system where it was introduced (McClory & Gotthardt 2008). Ward Lake is located is on the northwest side of Revillagigedo Island, approximately six and half miles from the Project area. The carpet sea squirt (*Didemnum vexillum*) is found in Whiting Harbor near Sitka, Alaska, but no other invasive animal species of concern have been reported in the vicinity of the Project area.

TABLE 6-9 ADFG LIST OF INVASIVE ANIMAL SPECIES

COMMON NAME
Atlantic salmon
Chinese mitten crab
Chytrid fungus
Didemnum vexillum
European green crab
European starling
Gypsy moth
Invasive tunicates
• Botrylloides violaceus
• Botryllus schlosseri
New Zealand mudsnails
Northern pike
Norway rat
Quagga mussels
Red-legged frog
Rock dove
Sargassum muticum
Zebra mussels

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6.6 UPLAND BOTANICAL RESOURCES

The Project area is located in the Coastal Western Hemlock-Sitka Spruce Forests Ecoregion. This ecoregion is dominated by forests of western hemlock (*Tsuga heterophylla*) and Sitka spruce (*Picea sitchensis*) with some western red cedar (*Thuja plicata*) and Alaska yellow cedar (*Callitropsis nootkatensis*) (Gallant et. al. 2010; KPU 1992). The topography and soils in the ecoregion are the result of intense glaciation (Gallant et. al. 2010). Portions of Revillagigedo Island have been logged, but show rapid regeneration, resulting in dense stands of young growth forests. Individual tree species can be long-lived, and many of the forests are old-growth. Old growth forests take about 200 to 300 years to develop and are defined by such features as a multi-layered canopy, the presence of large, old trees, a well-developed understory, and dead and down trees on the forest floor (ADFG 2015). Young-growth stands result from disturbances that fell trees; these are characterized by uniform stands less than 150 years old, a single-layered canopy, and a sparse understory (ADFG 2015). Based on Alaska Center for Conservation Science's vegetation mapping available for the Project area, vegetation communities predominantly include Sitka Spruce/Hemlock Woodland and Low-Tall Shrub (Figure 6-3) (ACCS 2019). Developed and bare ground areas occur in approximately two percent of the Project area (ACCS 2019). Acreages for each vegetation type in the Project area are summarized in Table 6-10. Wetland habitats as described in Section 6.7 overlap with vegetation community designations described in Table 6-10.

TABLE 6-10 VEGETATION COMMUNITIES WITHIN THE PROJECT BOUNDARY

VEGETATION COMMUNITY*	ACRES	PERCENT OF PROJECT AREA
Hemlock-Sitka Spruce	159	2.5
Low-Tall Shrub	21.4	4.3
Developed/Bareground	8.9	1.8
Deciduous Forest (Seasonally Flooded)	0.7	0.1
Water (Upper and Lower Silvis Lakes)	310	91.3
Total	500	100

*Acres represented in this vegetation communities table do not match the acres described in the wetlands vegetation communities table described in Section 6.7. Information is derived from differing sources.

Source: ACCS 2019

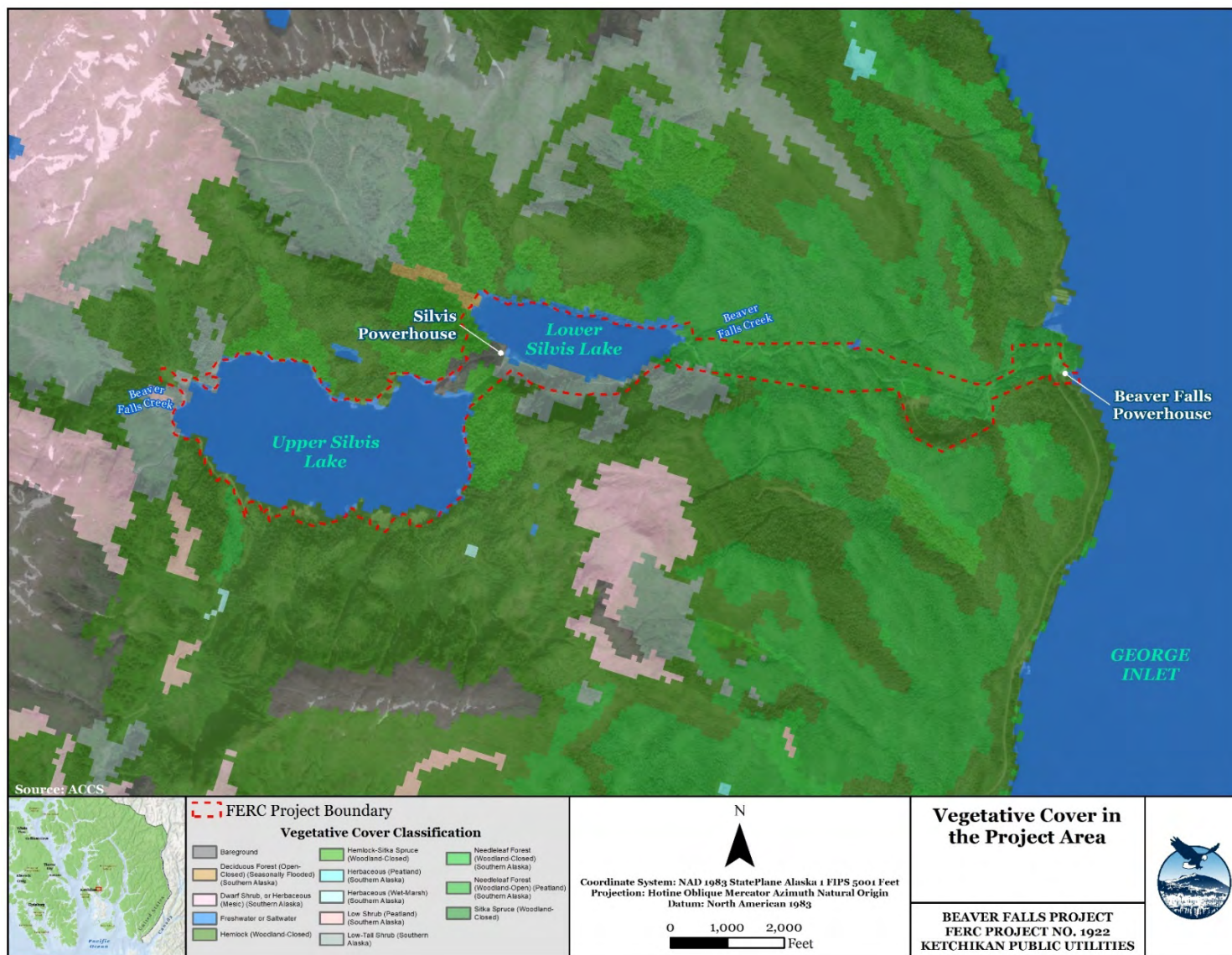


FIGURE 6-3 VEGETATIVE COVER IN THE PROJECT AREA

6.6.1 HABITAT COMMUNITIES AND SPECIES

6.6.1.1 HEMLOCK-SITKA SPRUCE

Most of the area along the dual use access road/foot trail between the George Inlet coast and the Lower Silvis Lake is comprised of a dense forest of Sitka spruce, western hemlock, yellow cedar, and western red cedar. Common understory shrub species typically include shrubs including blueberry species (*Vaccinium spp*), rusty menziesia (*Menziesia ferruginea*), salmonberry (*Rubus spectabilis*), bunchberry (*Cornus canadensis*), and Devil's club (*Oplopanax horridus*).

Understory herbaceous species include twisted-stalk (*Streptopus spp.*), marsh marigold (*Caltha palustris*), American skunk cabbage (*Lysichiton americanus*), false hellebore (*Veratrum viride*), and various fern species (*Adiantum & polystichum spp.*). The canopy cover in Sitka

Spruce/Hemlock woodlands typically varies from 25 to 100 percent with a well-developed shrub understory and a moss ground cover (Alaska Wildland Fire Coordinating Group 2018).

In the Project area, dead standing yellow cedar trees are visible and the number of dead standing yellow cedar trees increases with elevation decline. The yellow cedar in southeastern Alaska has been in decline since the 1880's (ABR, Inc. Environmental Research & Services 2018). Research in the 2000's identified that climate change and decreasing snow pack appears to be the primary cause of the decline (ABR, Inc. Environmental Research & Services 2018). In poorly drained soils, yellow cedar has shallow root systems to access nitrogen during spring thaws, however the shallow roots are not extremely cold hardy compared to other species in the region (ABR, Inc. Environmental Research & Services 2018; USFWS 2010, 2012). The shallow root systems were historically protected from low temperatures by a deeper snow cover, but changing climate in Alaska since the 1900's has resulted in warmer winters and a reduced snowpack, while the spring temperatures have continued to fluctuate resulting in late seasons cold events resulting in lethal cold temperatures for the fine shallow roots of the yellow cedar (ABR, Inc. Environmental Research & Services 2018; Thomas 2013; USFWS 2010, 2012). Over a 10 to 15-year time with repeated fine root freezing events, yellow cedar trees will eventually die. The yellow cedar is extremely decay resistant and the tree may remain standing for 80 to 100 years after the tree has died (USFS 2018). The peak of tree death for the yellow cedar was the late 1970s and 1980s, but the decline of yellow cedar continues on at a reduced rate in lower elevations and poorly drained soils.

6.6.1.2 LOW-TALL SHRUB

Along Lower Silvis Lake, along waterways, and in disturbed area is the Low-Tall Shrub community, dominated by red alder (*Alnus rubra*) and Sitka alder (*Alnus viridis* ssp. *sinuata*) (KPU 1992; ACCS 2019). Salmonberry is also common in forest openings (KPU 1992). Red alder, a nitrogen-fixing species, is typically found on alluvial fans and areas where the bare mineral soils are exposed, such as in landslide areas and where ground disturbance logging techniques were used. Red alder has been found to enhance wildlife habitats by increasing understory vegetation biomass, providing a food source for wildlife and songbirds, and increased stream productivity (Duncan 2004; Hanley 2006). Sitka alder is also a nitrogen fixing species.

6.6.1.3 DEVELOPED/BARE GROUND

Developed areas include the dams, powerhouses, access road/foot trail, and parking area. Bare ground areas are areas with less than ten percent vegetative cover and consist of predominantly high-elevation rock/gravel areas in the Project area. Herbaceous weedy species occur in disturbed areas.

6.6.2 INVASIVE PLANTS AND NOXIOUS WEEDS

The State of Alaska defines noxious weeds as any species of plants, either annual, biennial, or perennial, reproduced by seed, root, underground stem, or bulblet, which when established is or may become destructive and difficult to control by ordinary means of cultivation or other farm practices; or seed of such weeds that is considered commercially inseparable from agricultural or vegetable seed (11 AAC 34.400). Additionally, according to Presidential Executive Order 13112, invasive species are 1) nonnative to the ecosystem under consideration, and 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Nonnative species are species introduced with human help (intentionally or accidentally) to a new place or new type of habitat where it was not previously found. Not all non-native species are invasive.

Historically, Alaska has been isolated by its climate and remote location from the many invasive and noxious weed problems found in the majority of North America. However, more than 27,000 infestations have been documented in the State of Alaska (BLM 2019). Non-native and invasive plant species have the potential to create environmental and economic harm based on their ability

to increase in cover relative to surrounding native vegetation and exclude native plants from an area. Noxious weeds and invasive species can affect agriculture, tourism, wildlife, fisheries, land values, and subsistence resources in the State of Alaska (Alaska Committee for Noxious and Invasive Plant Management 2016). Table 6-11 provides a list of designated noxious weed species as identified by the State of Alaska and which species have been observed on the Revillagigedo Island based on locations documented by the Alaska Exotic Plant Information Clearinghouse (AKEPIC 2019).

TABLE 6-11 PROHIBITED NOXIOUS WEED SPECIES FOR ALASKA (11 AAC 34.020)^A

COMMON NAME	SCIENTIFIC NAME	SPECIES DOCUMENTED ON REVILLAGIGEDO ISLAND ^B
Russian Knapweed	<i>Acroptilon repens</i>	
Whitetops and its varieties	<i>Cardaria draba</i> , <i>C. pubescens</i> , <i>Lapidium latifolium</i>	
Canada Thistle	<i>Cirsium arvense</i>	X
Field Bindweed	<i>Convolvulus arvensis</i>	X
Quackgrass	<i>Elymus repens</i>	
Leafy Spurge	<i>Euphorbia esula</i>	
Galensoga	<i>Galensoga parviflora</i>	
Hempnettle	<i>Galeopsis tetrahit</i>	X
Orange Hawkweed	<i>Hieracium aurantiacum</i>	X (observed along the Foot Trail)
Blue-flowering Lettuce	<i>Lactuca pulchella</i>	
Purple Loosestrife	<i>Lythrum salicaria</i>	
Austrian Fieldcress	<i>Rorippa austriaca</i>	
Horsenettle	<i>Solanum carolinense</i>	
Perennial Sowthistle	<i>Sonchus arvensis</i>	X

^a Alaska Administrative Code 11 AAC 34.020 defines the list of Prohibited Noxious Weed. Orange hawkweed and purple loosestrife are not listed in 11 AAC 34.020 however these two species are listed as prohibited noxious weeds on the State of Alaska Department of Natural Resources list of Prohibited Noxious Weeds (DNR Division of Agriculture 2019).

^b Locations as documented by the Alaska Exotic Plants Information Clearinghouse (AKEPIC) (AKEPIC 2019).

In addition, non-native and invasive plants have been documented along the Beaver Falls Project access road/foot trail by the Alaska Exotic Plant Information Clearinghouse. Species identified in 2004 and 2006 include: colonial bentgrass (*Agrostis capillaris*), sweet vernal grass

(*Anthoxanthum odoratum*), big chickweed (*Cerastium fontanum*), purple foxglove (*Digitalis purpurea*), oxeye daisy (*Leucanthemum vulgare*), common plantain (*Plantago major*), annual bluegrass (*Poa annua*), Kentucky bluegrass (*Poa pratensis*), creeping buttercup (*Ranunculus repens*), common sheep sorrel (*Rumex acetosella*), curly dock (*Rumex crispus*), common dandelion (*Taraxacum officinale*), and white clover (*Trifolium repens*) (AKEPIC 2019) (Figure 6-4).

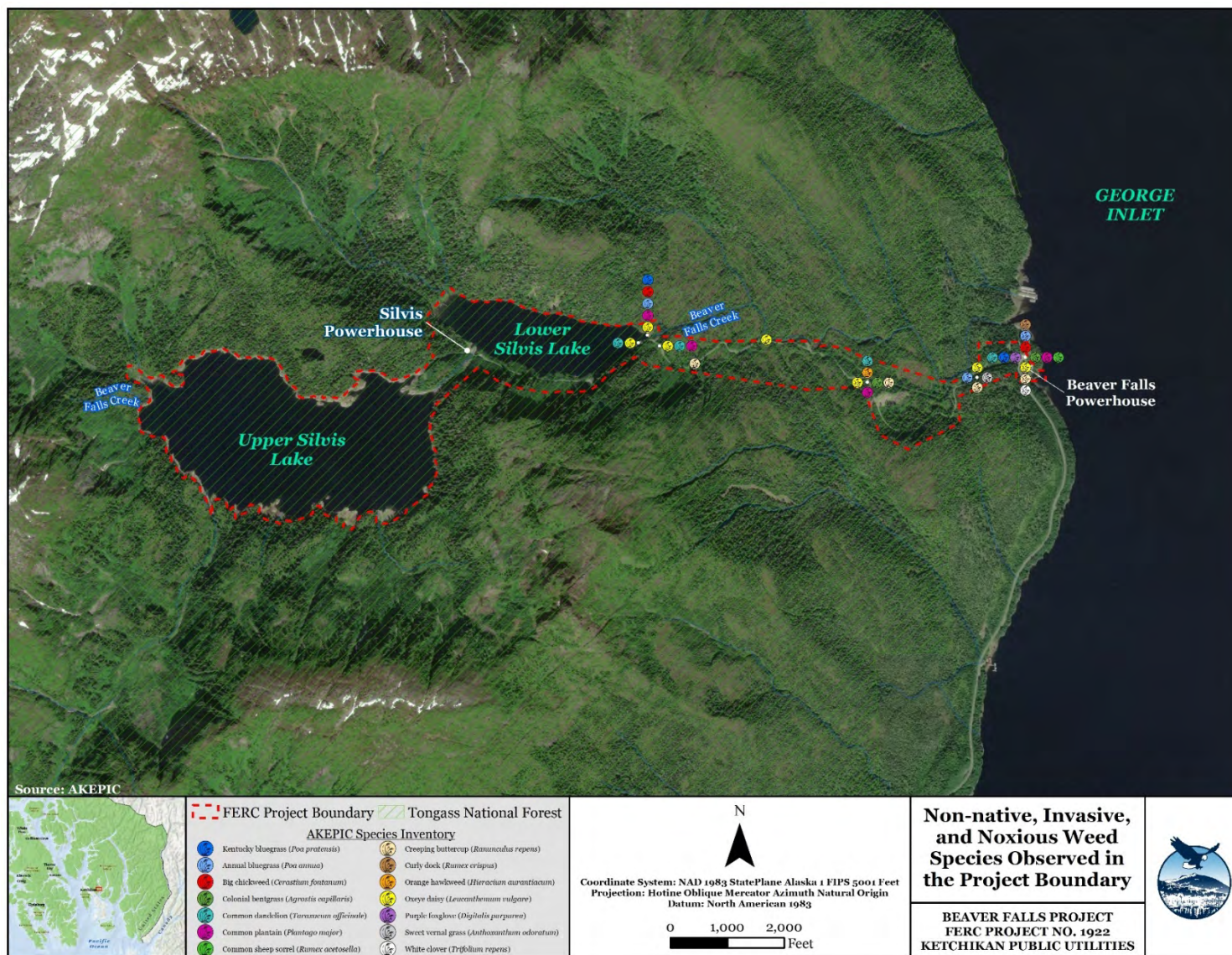


FIGURE 6-4 NON-NATIVE, INVASIVE, AND NOXIOUS WEED SPECIES DOCUMENTED IN THE PROJECT AREA

6.6.3 REFERENCES

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6.7 RIPARIAN, WETLAND, AND LITTORAL RESOURCES

6.7.1 RIPARIAN HABITAT

Riparian areas are defined in the TNF Land and Resource Management Plan (“Tongass Forest Plan”) as follows: “Riparian areas encompass the zone of interaction between aquatic and terrestrial environments associated with streamsides, lakeshores, and floodplains, and display distinctive ecological conditions characterized by high species diversity, wildlife value, and resource productivity” (USDA 2016). The Tongass Forest Plan designates Riparian Management Areas (RMAs) along waterways and lakes using a methodology based on channel types and fluvial process groups. RMAs are a means to categorize stream channels based on their fish production values. There are four RMA stream classes in the TNF:

- **Class I:** Streams and lakes with anadromous or adfluvial fish or fish habitat, or high quality resident fish waters or habitat above fish migration barriers known to provide reasonable enhancement opportunities for anadromous fish.
- **Class II:** Streams and lakes with resident fish or fish habitat—generally steep channels 6 to 25 percent or higher gradient—where no anadromous fish occur, and otherwise do not meet Class I criteria.
- **Class III:** Perennial and intermittent streams with no fish populations but which have sufficient flow, or transport sufficient sediment and debris, to have an immediate influence on downstream water quality or fish habitat capability. For streams less than 30 percent gradient, special care is needed to determine if resident fish are present. A stream segment is designated Class III if the following conditions are met for the majority of its length: Bankfull stream width greater than 1.5 meters (5 feet) and channel incision (or entrenchment) greater than 5 meters (15 feet). Streams that do not meet both the width and incision criteria may be classified as Class III streams based on a professional interpretation of stream characteristics for the stream segment being assessed. The following characteristics **could** indicate a Class III stream: a. Steep side-slopes containing mobile fine sediments, sand deposits, or deep soils that can provide an abundant source area for sedimentation. b. Very steep gradient channels (greater than 35 percent slope). c. Recently transported bedload or woody debris wedges (especially if deposited outside high water mark). d. High water indicators (scour lines, drift lines, etc.) that greatly exceed observed wetted stream width. e. Large sediment deposits stored amongst debris that could be readily transported if debris shifts.
- **Class IV:** Other intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capacity to directly influence downstream water quality or fish habitat capability. Class IV streams do not meet the criterion used to define Class I, II, or III streams. Class IV streams must have bankfull width of at least 0.3 meter (1 foot) over the majority of the stream segment. For perennial streams, with average channel gradients less than 30 percent, special care is needed to determine if resident fish are present (resident fish presence dictates a Class II designation).

RMAs in the Project area are associated with Upper Silvis Lake, Lower Silvis Lake, Beaver Falls Creek, and the unnamed tributary streams that empty into the two lakes (Figure 6-5) (USDA 2016). RMAs identified in the Project area include a mix of Class I, II, and III Streams. The Tongass Forest Plan identifies approximately 350.53 acres of RMAs within the Project boundary.

Red alder and Sitka alder are common riparian species in the Project area (City of Ketchikan 1989). Other plant species likely to occur in riparian areas based on vegetation mapping (ACCS 2019) and USDA soils mapping (USDA 2019) include hemlock, Sitka spruce, salmonberry, salal (*Gaultheria shallon*), rusty menziesia, devils club, and blueberry.

Riparian areas in southeast Alaska are important habitats that support fish in adjacent waters, amphibians, birds, small and large mammals. Riparian area vegetation along streams and lakes is a key food source for invertebrates such as caddisflies, stoneflies, mayflies and black flies, which in turn are a primary food source for fish. Amphibians that require water to complete their life cycles are closely linked to riparian areas year-round. Riparian areas support feeding, breeding, and nesting areas for a variety of migratory birds (ADFG 2006).

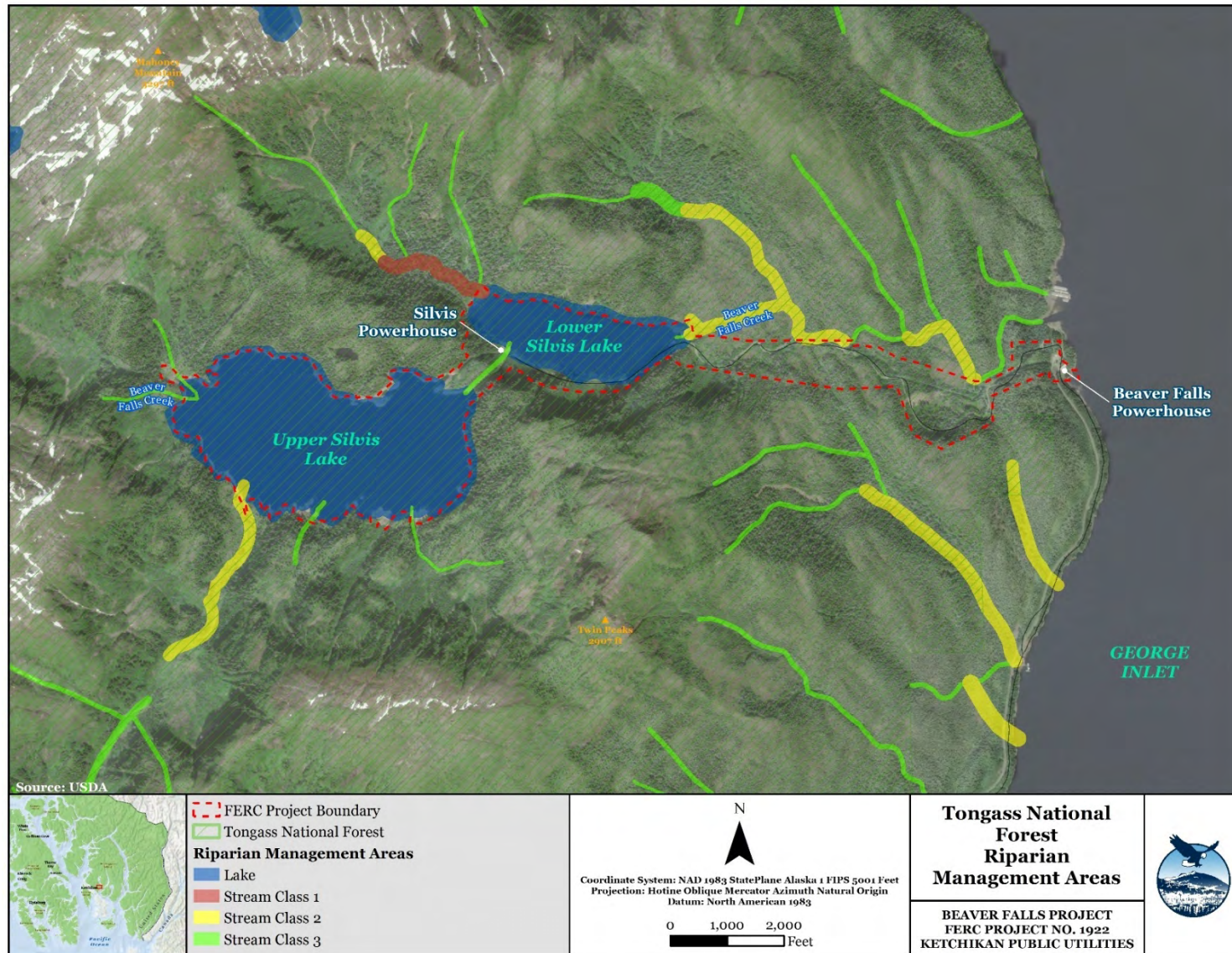


FIGURE 6-5 TONGASS NATIONAL FOREST RIPARIAN MANAGEMENT AREAS IDENTIFIED WITHIN THE PROJECT AREA

6.7.2 WETLAND HABITAT

Wetlands are defined in the Tongass Forest Plan as “Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (USDA, 2016).

Wetland habitat within the Project area was identified using the USFWS National Wetlands Inventory (NWI) (USFWS 2019) (Figure 6-6). NWI data is derived from aerial photograph interpretation with limited ground truthing. Aerial photographs used for the NWI in the Project vicinity were small scale (1:60,000 scale) color infrared photographs taken in 1979.

Mapped wetland types in the Project area include palustrine forested/emergent, palustrine scrub-shrub, and palustrine unconsolidated bottom. The NWI also maps deepwater habitats and streams that generally do not meet the above definition of wetlands. These include Upper Silvis Lake (lacustrine, unconsolidated bottom, permanently flooded), Lower Silvis Lake (lacustrine, unconsolidated bottom, permanently flooded, diked/impounded), George Inlet (estuarine, subtidal, unconsolidated bottom), Beaver Falls Creek downstream of Lower Silvis Lake (riverine, upper perennial, unconsolidated bottom, permanently flooded), Beaver Falls Creek between Upper and Lower Silvis Lakes and upstream of Upper Silvis Lake (riverine, unknown perennial, unconsolidated bottom, permanently flooded), and five unnamed tributaries to Upper Silvis Lake and one unnamed tributary to Lower Silvis Lake. There are a total of 394.14 acres of NWI-mapped features within the Project boundary (Table 6-12). Of these, 86.75 acres meet the definition for wetlands.

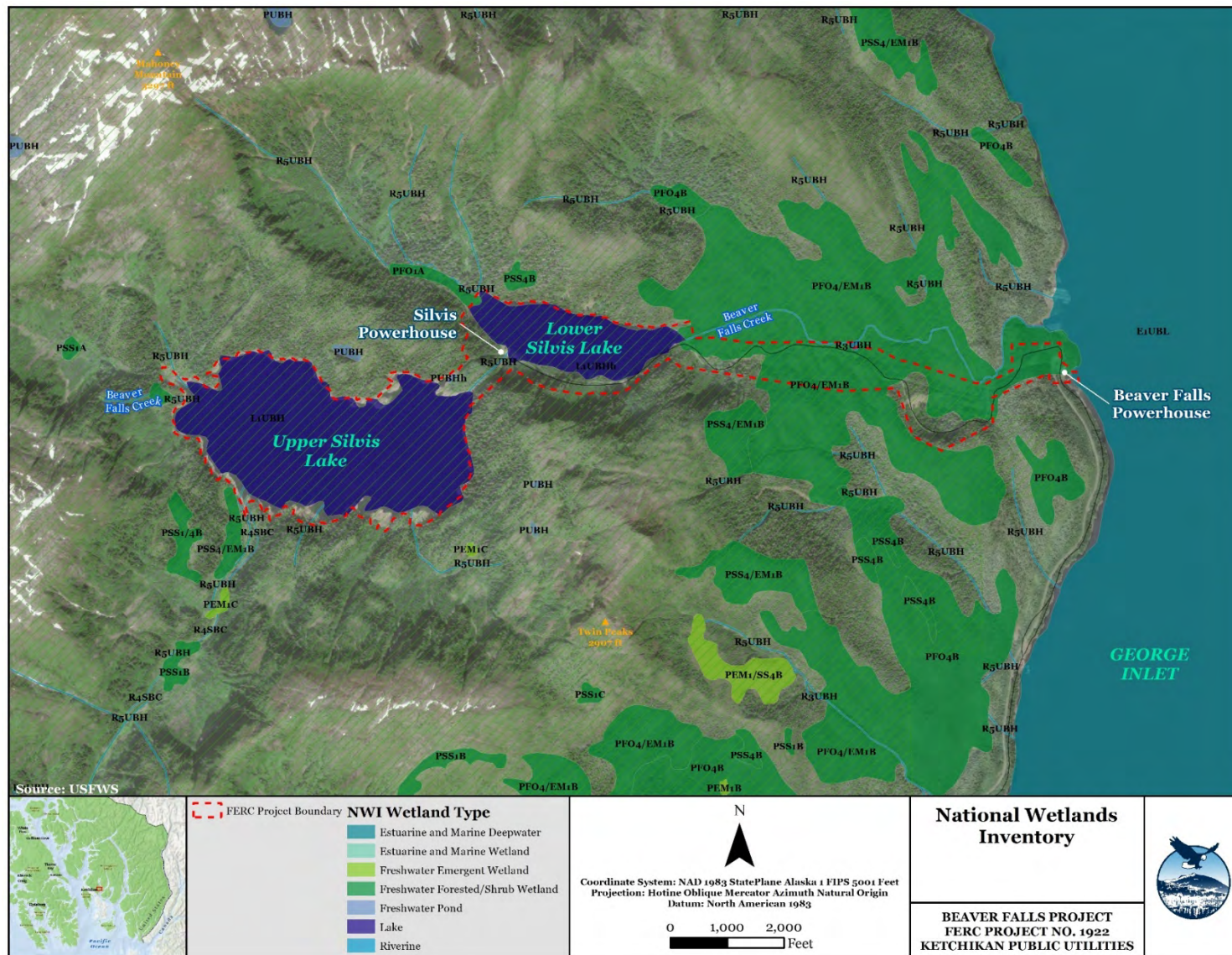


FIGURE 6-6 NWI WETLAND HABITAT IDENTIFIED WITHIN THE PROJECT AREA

TABLE 6-12 NWI FEATURES WITHIN THE PROJECT BOUNDARY

TYPE	NWI CODE	ACRES
WETLANDS		
Freshwater Forested/Shrub Wetland	PFO1A	0.51
Freshwater Forested/Shrub Wetland	PFO4/EM1B	85.74
Freshwater Forested/Shrub Wetland	PSS4/EM1B	0.01
Freshwater Pond	PUBHh	0.49
Subtotal		86.75
DEEPWATER HABITATS		
Estuarine and Marine Deepwater	E1UBL	0.50
Lake	L1UBH	233.75
Lake	L1UBHh	70.91
Subtotal		305.16
STREAMS		
Riverine	R3UBH	0.67
Riverine	R4SBC	0.09
Riverine	R5UBH	1.47
Subtotal		2.23
Total		394.14

Source: USFWS 2019

Most of the Project area downslope of Lower Silvis Lake is mapped as a combination of palustrine forested and palustrine emergent wetlands. The forested wetlands within these areas are further classified as a needle-leaved evergreen plant community. The emergent wetlands are further classified as having persistent vegetation that normally remains standing at least until the beginning of the next growing season. The water regime for both the forested and emergent wetlands is identified as seasonally saturated, which is defined as “The substrate is saturated at or near the surface for extended periods during the growing season, but unsaturated conditions prevail by the end of the season in most years. Surface water is typically absent, but may occur for a few days after heavy rain and upland runoff” (USFWS 2019). Mapped soils in these areas are primarily soil series that are classified as hydric (associated with wetlands) and include peats and loams (USDA 2019). Dominant tree species likely to occur in these wetlands include lodgepole pine (*Pinus contorta* var. *contorta*), western hemlock, Sitka spruce, and yellow cedar. Common understory species likely to occur include devils club, blueberry, salal, skunk cabbage, black crowberry (*Empetrum nigrum*), darkthroat shootingstar (*Primula pauciflora* var.

pauciflora), calthaleaf avens (*Geum calthifolium*), deercabbage (*Nephrophyllidium crista-galli*), *Carex* spp., and *Sphagnum* spp. (ACCS 2019).

A palustrine forested wetland is mapped on the NWI at the east end of Lower Silvis Lake, associated with an unnamed tributary to the lake. The wetland is classified as broad-leaved deciduous with a temporary flooded water regime. Dominant vegetation likely to occur includes cottonwood (*Populus balsamifera* ssp. *Trichocarpa*), Sitka spruce, red alder, Sitka alder (*Alnus viridis* ssp. *sinuata*), devils club, salmonberry, and lady fern (*Athyrium filix-femina*) (ACCS 2019). Mapped soils are Helm muck, a hydric soil (USDA 2019).

Wetland habitats in southeast Alaska are important summer staging and breeding grounds for migratory birds including numerous shorebird and waterfowl species. They provide protected breeding areas for amphibians including wood frog, spotted frog, rough-skinned newt, northwestern salamander, long-toed salamander, and western toad (ADFG 2006).



PHOTO 6-2 FORESTED SHRUB WETLAND ALONG PROJECT PENSTOCK SYSTEM

6.7.3 LITTORAL HABITAT

Littoral habitat is not defined in the Tongass Forest Plan. There is no single definition, but it is generally characterized as the area close to the shore of a river, lake, or tidal waters that is submerged in water to some degree. In non-tidal systems it is generally the area between ordinary high water and ordinary low water. In estuarine and marine systems it is generally the intertidal area.

Littoral habitat in the Project area includes the nearshore portions of George Inlet, Upper Silvis Lake and Lower Silvis Lake (Figure 6-7). For the purposes of this assessment, the area of littoral habitat for George Inlet is considered to include the area between mean higher high water and mean lower low water based on the Ketchikan, Alaska tide gage (Station ID: 9450460). For the purposes of this assessment the area of littoral habitat for Upper Silvis Lake and Lower Silvis Lake is considered to be the area between the maximum and minimum pool elevations under normal dam operations. For Upper Silvis Lake this is the portion of the reservoir between elevation 1154 feet and 1120 feet. For Lower Silvis Lake this is the portion of the reservoir between elevation 827 feet and 802 feet (City of Ketchikan 1989).

Littoral habitat is used by resident and migratory bird species, including waterfowl, shorebirds, and raptors. Lake littoral habitats may also be used by amphibians breeding and rearing areas. Littoral habitats associated with marine waters such as George Inlet include intertidal habitat that may support chitons, sea urchins, grazing snails, barnacles, and crabs (ADFG 2006).

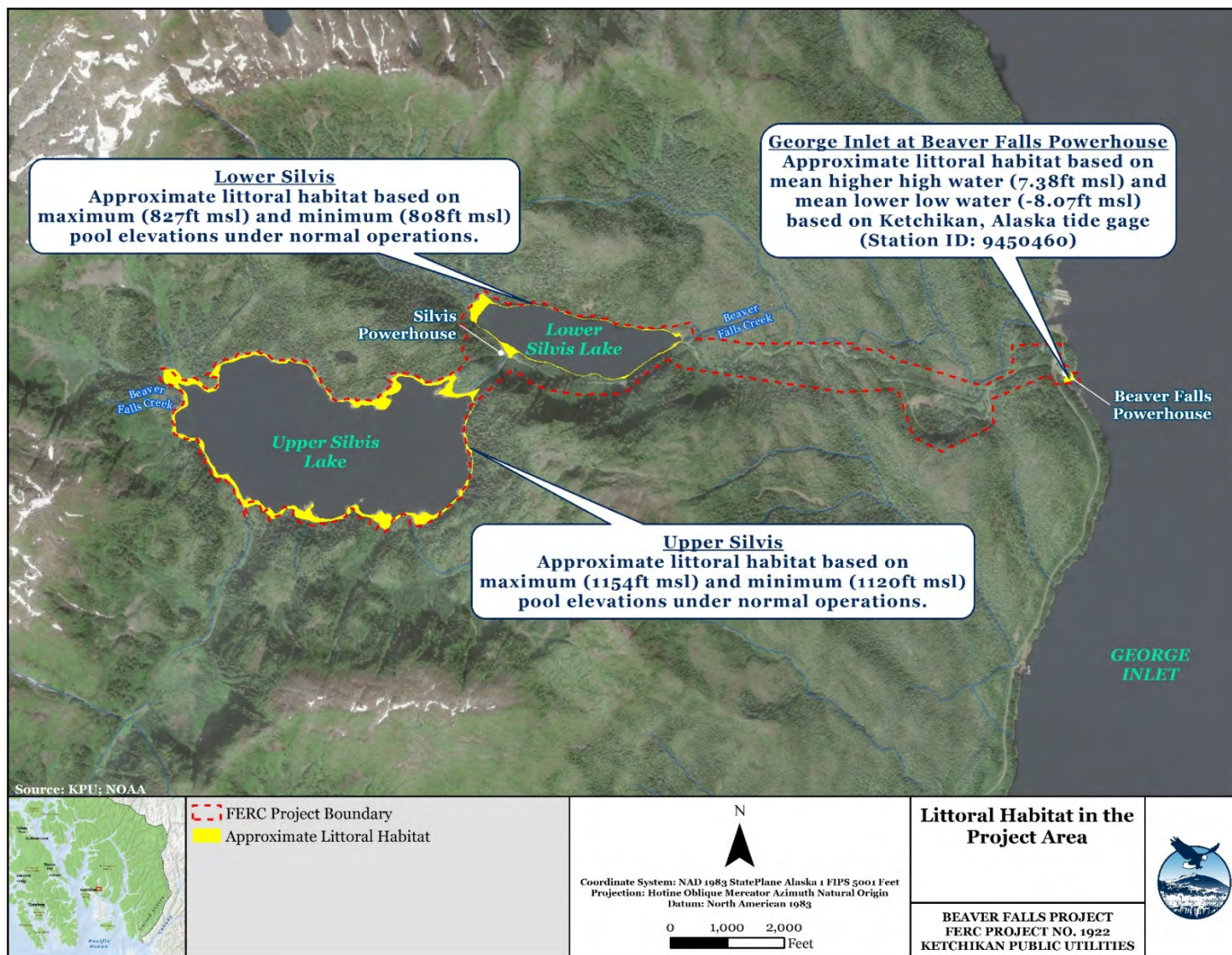


FIGURE 6-7 APPROXIMATE LITTORAL HABITAT IN THE PROJECT AREA

6.7.4 INVASIVE PLANTS AND NOXIOUS WEEDS

Section 6.6.2 identifies a list of designated noxious weed species as identified by the State of Alaska and which species have been observed on Revillagigedo Island based on locations documented by the Alaska Exotic Plant Information Clearinghouse. Specific locations of invasive plant species documented within the Project area as documented by the Alaska Exotic Plant Information Clearinghouse are also included within Figure 6-4 in Section 6.6.2.

6.7.5 REFERENCES

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6.8 RARE, THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES

The USFWS Information, Planning, and Consultation (IPaC) Report generated on February 1, 2019 identifies no federally listed threatened, endangered, or candidate species within the Project area (Appendix B). The 2016 Tongass Forest Plan identifies no federally threatened or endangered fish species or plant species within the territorial bounds of TNF (USDA 2016). Two federally listed marine mammal species (the western distinct population segment (DPS) of the Steller sea lion (*Eumetopias jubatus*) and the Mexico DPS of the Humpback Whale (*Megaptera novaeangliae*) are found in the waters within the limits of the TNF (USDA 2016), however it is not expected that marine mammals would be pertinent to the relicensing of the Project. The 2016 Tongass Forest Plan additionally notes that there are currently no threatened or endangered fish species or plant species identified within the territorial bounds of Tongass National Forest (USDA 2016).

The Forest Service Alaska Region Sensitive Species List was updated in 2009 and lists 16 plant species and four wildlife species as designated Sensitive Species by the USFS (Goldstein et al. 2009) (Table 6-13). All four wildlife species and 14 of the plant species are known to occur in the TNF. Two plant species, the pale poppy (*Papaver alboroseum*) and Eschscholtz's little nightmare (*Aphragmus eschscholtzianus*), are not suspected to occur within the Forest.

TABLE 6-13 FOREST SERVICE ALASKA REGION SENSITIVE SPECIES LIST (2009)

COMMON NAME	SCIENTIFIC NAME	STATUS
Plants		
Eschscholtz's little nightmare*	<i>Aphragmus eschscholtzianus</i>	FS Sensitive
Moosewort fern	<i>Botrychium tunux</i>	FS Sensitive
Moonwort fern, no common name	<i>Botrychium yaaxudakeit</i>	FS Sensitive
Edible thistle	<i>Cirsium edule</i> var. <i>macounii</i>	FS Sensitive
Calder's loveage	<i>Ligusticum calderi</i>	FS Sensitive
Pale poppy*	<i>Papaver alboroseum</i>	FS Sensitive
Unalaska mist-maid	<i>Romanzoffia unalaschcensis</i>	FS Sensitive
Spatulate moonwort	<i>Botrychium spathulatum</i>	FS Sensitive
Mountain lady's slipper	<i>Cypripedium montanum</i>	FS Sensitive
Large yellow lady's slipper	<i>Cypripedium parviflorum</i> var. <i>pubescens</i>	FS Sensitive
Lichen, no common name	<i>Lobaria amplissima</i>	FS Sensitive
Alaska rein orchid	<i>Piperia unalascensis</i>	FS Sensitive

COMMON NAME	SCIENTIFIC NAME	STATUS
Lesser round-leaved orchid	<i>Platanthera orbiculata</i>	FS Sensitive
Kruckeberg's swordfern	<i>Polystichum kruckebergii</i>	FS Sensitive
Henderson's checkermallow	<i>Sidalcea hendersonii</i>	FS Sensitive
Dune tansy	<i>Tanacetum bipinnatum</i> subsp. <i>huronense</i>	FS Sensitive
Wildlife		
Kittlitz's Murrelet	<i>Brachyramphus brevirostris</i>	FS Sensitive*
Queen Charlotte goshawk	<i>Accipiter gentilis laingi</i>	FS Sensitive
Aleutian Tern	<i>Sterna aleutica</i>	FS Sensitive
Black oystercatcher	<i>Haematopus bachmani</i>	FS Sensitive

*Not suspected to occur within TNF.

Source: Goldstein et al. 2009

KPU additionally consulted with the Alaska Natural Heritage Program for review of potential state-listed rare, threatened, and endangered species present within the Project area. Per an email dated June 5, 2019 (Appendix B), the Alaska Natural Heritage Program provided a list of four wildlife species found on Revillagigedo Island and that have a state natural heritage ranking (AKNHP 2019b). The four identified species are listed in Table 6-14. The Alaska Natural Heritage Program was also consulted for identification of any known state-listed rare, threatened, and endangered plant species in the Project area. Per email dated May 24, 2019, the Natural Heritage Program confirmed that there no known rare plant instances identified within the Project area (AKNHP 2019a) (Appendix B).

TABLE 6-14 ALASKA NATURAL HERITAGE PROGRAM REVILLAGIGEDO ISLAND RARE SPECIES LIST

COMMON NAME	SCIENTIFIC NAME	STATUS
Western Screech Owl	<i>Megascops kennicottii</i>	S2
Revillagigedo Island Red-backed Vole	<i>Myodes gapperi soleus</i>	S3
Alexander Archipelago Wolf	<i>Canis lupus ligoni</i>	S3
Olive-sided flycatcher	<i>Contopus cooperi</i>	S4; S5B

S2 = Imperiled in state (6-20 occurrences)

S3 = Rare or uncommon in state (21-100 occurrences)

S4 = Apparently secure in state, but with cause for long-term concern (usually more than 100 occurrences)

S5 = Demonstrably secure in state

Bald Eagles, protected by the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and Lacey Act, are numerous in the Project area, although no Bald Eagle nests have been recorded within the Project boundary (USFWS 2018).

6.8.1 RARE, THREATENED, AND ENDANGERED WILDLIFE SPECIES

Only one of the four identified Forest Service Sensitive Species, Queen Charlotte goshawk (*Accipiter gentilis laingi*), has been observed on Revillagigedo Island; however, the species is a rare visitor to the island (Heinl and Piston 2009, Titus et al 1998).

Queen Charlotte Goshawk

Queen Charlotte goshawk is darker and smaller than the Northern Goshawk. The species occurs in the coastal forests of Southeast Alaska, where they nest in the dense canopy forests and forage in medium and high volume forests (UFWS 2012). The species avoids non-forested and clear-cut areas. As the species occurs in low densities in Southeast Alaska and is rarely seen on Revillagigedo Island, there is low potential for the species to be found in the Project Area.

The Western screech owl (*Megascops kennicottii*), Revillagigedo Island red-backed vole (*Myodes gapperi soleus*), and olive-sided flycatcher (*Contopus cooperi*) are state-listed rare species that have potential to occur in the Project area. The Alexander Archipelago wolf is further described in Section 6.4 and also has potential to occur in the Project area.

Western Screech Owl

Western screech owls live mainly in forested habitats, especially in bands of deciduous trees along canyons or other drainages (Cornell University 2017a). Common trees include cottonwood, aspen, alder, water birch, oak, and bigleaf maple (*Acer macrophyllum*). Western screech owls nest in tree cavities excavated by woodpeckers. The Alaska Natural Heritage Program identifies that seven western screen owls were recorded on Revillagigedo Island from 2005-2008. The western screech owl may have the potential to occur within the Project area (AKNHP 2019b).

Revillagigedo Island Red-backed Vole

Red-backed voles inhabit cool, mossy and rocky boreal forests in both dry and moist areas. They also inhabit tundra and bogs (Ballenger 2011). Coniferous forests are preferred habitat, although

they are also found in mixed coniferous and deciduous forests. Red-backed vole nests are generally constructed under the roots of stumps, logs, or brush piles. The Revillagigedo Island red-based vole may have the potential to occur within the Project area (AKNHP 2019b).

Olive-sided Flycatcher

Olive-sided flycatchers breed mostly in boreal forests and in western coniferous forests, from sea level to 10,000 feet in elevation (Cornell University 2017b). In nesting areas they use openings or edges along meadows, rivers, streams, beaver ponds, bogs, and muskegs in the forest and are rarely found in deep, dense forest areas. The olive-sided flycatcher may have the potential to occur within the Project area (AKNHP 2019b).

6.8.2 RARE, THREATENED, AND ENDANGERED BOTANICAL SPECIES AND HABITATS

One Forest Service listed Sensitive Plant species, lesser round-leaved orchid (*Platanthera orbiculate*), has been documented to occur on Revillagigedo Island and in 88 locations in the southern portion of the TNF (Goldstein et al. 2009). The species is found in wet coniferous forests, low elevation forested wetlands, medium to high volume old growth hemlock forests, on slopes between 15% and 75%, in areas of high bryophyte cover, in areas with red cedar, and low for cover, along forest edges or near gaps in otherwise shady forests, and near open water or boggy areas (Goldstein et al. 2009). Habitat for the species has the potential to occur in the Project area.

The other rare plant species identified to occur within the TNF have not been documented on Revillagigedo Island or outside of their limited ranges. Based on these observations, it is likely that there is little to no potential for these species to occur in the Project area.

6.8.3 REFERENCES

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6.9 RECREATION AND LAND USE

The Beaver Falls Project is primarily located within the TNF, the largest National Forest at over 17 million acres, managed by the USFS Ketchikan-Misty Fjords Ranger District (USFS 2016b) Figure 6-8; Figure 6-9). Primary recreational opportunities include tourist activities in downtown Ketchikan, as well as hiking, fishing, hunting, whale watching, and float plane tours.

In addition to the estimated 14,000 residents on Revillagigedo Island, the City of Ketchikan welcomes approximately 900,000 visitors annually, primarily during the months of April through September (KVC 2018). Over 95% of these visitors arrive via cruise ships following the Inside Passage, a route extending from the Queen Charlotte Islands of British Columbia, Canada to the Skagway, Alaska. Ketchikan is a major port stop for cruise ships, allowing passengers the opportunity to explore the city as well as nearby towns and outdoor recreation opportunities (KVC 2018).



FIGURE 6-8 TONGASS NATIONAL FOREST & WILDERNESS AREAS

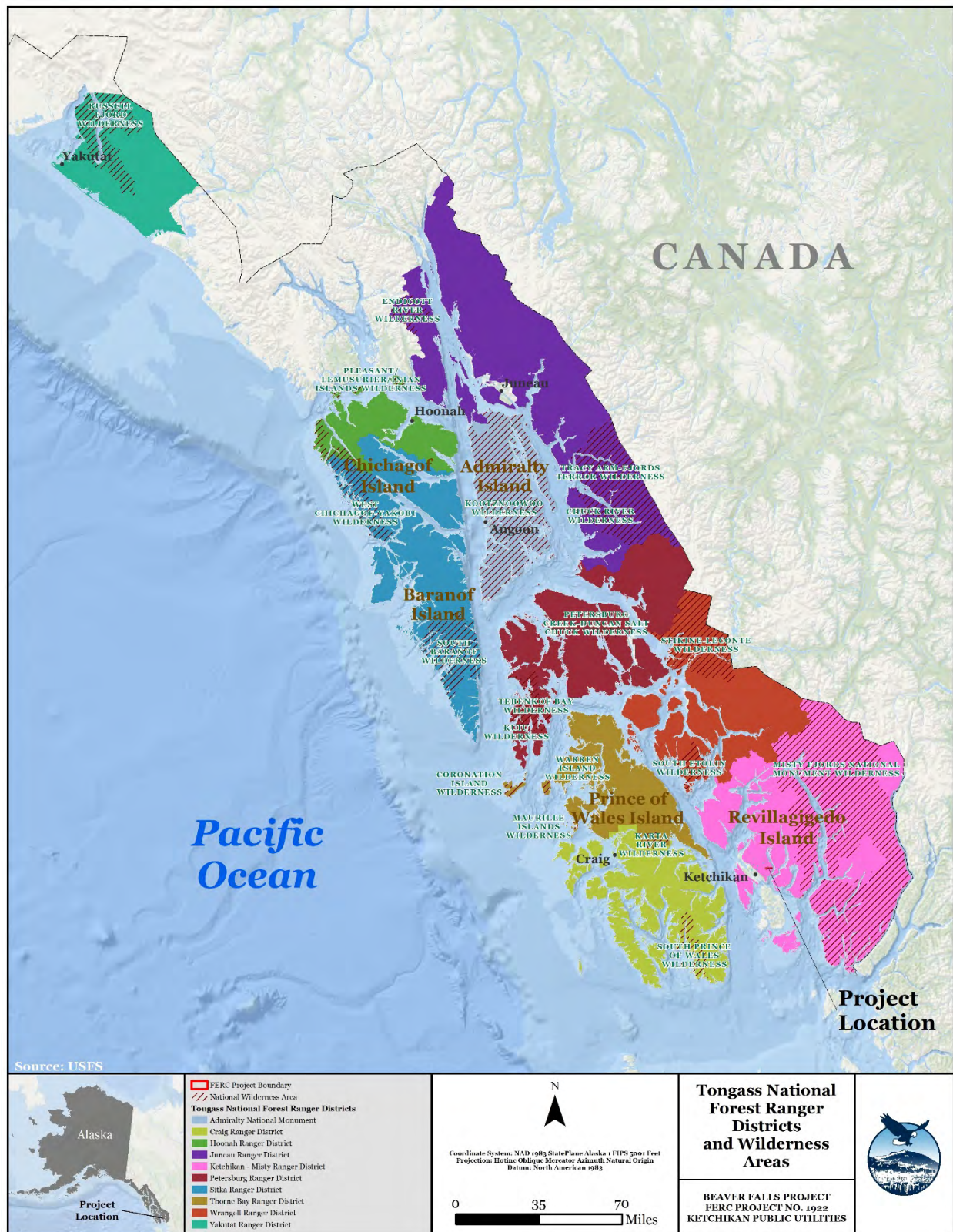


FIGURE 6-9 TONGASS NATIONAL FOREST RANGER DISTRICTS

6.9.1 PROJECT RECREATION OPPORTUNITIES AND USE

The Beaver Falls Project is available for year-round recreational opportunities; however, the majority of recreation use occurs during the summer and fall, when visitors enjoy non-motorized activities such as hiking, hunting, and nature viewing. Although available to the public for winter recreational use, snow levels and weather hinder access, therefore, minimizing use during winter months. A review of 2017 – 2019⁶ site visitor logs show that most visitors are day hikers to the Silvis Lakes.

Silvis Lake Trail

The Project area is traversed by the Silvis Lakes Trail, a primitive access road which doubles as a recreation trail (Figure 6-10) (Photo 6-3). The trail begins at the Beaver Falls Powerhouse and continues to the upper-end (western end) of Lower Silvis Lake, at which point the access road terminates and the USFS Deer Mountain-John Mountain trail system begins and can take hikers into the City of Ketchikan (approximate 12-mile trip one-way). The Silvis Lakes Trail is approximately three miles long with an elevation gain of approximately 1,100 feet. A parking area, informational kiosk, Project information board, and visitor sign-in are located at the base of the access road, adjacent to the Beaver Falls Powerhouse (Photo 6-3, Photo 6-4, Photo 6-5, and Photo 6-6).

⁶ KPU provides a visitor sign-in at the base of the dual use access road/Silvis Lakes Trail. KPU saves recorded visitor information.



PHOTO 6-3 SILVIS LAKES TRAILHEAD



PHOTO 6-4 SILVIS LAKES TRAIL KIOSK AT HEAD OF TRAIL



PHOTO 6-5 SILVIS LAKES TRAIL SIGN IN



PHOTO 6-6 PROJECT INFORMATION BOARD LOCATED IN THE SILVIS TRAIL PARKING AREA

Upper Silvis Lake

At an elevation of 1,112 feet, Upper Silvis Lake is the uppermost reservoir of the Project and located immediately upstream of Lower Silvis Lake. The reservoir does not include developed recreational facilities but is accessible to visitors via an approximate three-mile hike from the Silvis Lakes trailhead. Primary forms of recreation include hiking, hunting, and general sightseeing. (USFS 2013 & KPU visitor logs). Hikers can access the USFS Deer Mountain-John Mountain trail system from the eastern end of Upper Silvis Lake (Figures 6-10 and 6-11) (Photo 6-7).



PHOTO 6-7 ACCESS TO USFS TRAIL SYSTEM FROM UPPER SILVIS LAKE

Lower Silvis Lake

Lower Silvis Lake is located directly downstream of Upper Silvis Lake and approximately 800 feet above sea level. Developed recreational facilities include a half mile trail (maintained by the USFS) running from the Silvis Powerhouse to Upper Silvis Lake, three picnic tables, bear proof trash receptacles, fire rings, and an outhouse that are seasonally maintained (Figure 6-10) (Photo

6-8 and Photo 6-9). The lake and associated recreational amenities are accessible to visitors following an approximate two-mile hike from the Silvis Lakes trailhead. Primary forms of recreation include hiking, hunting, and nature viewing (KPU Visitor Logs).



PHOTO 6-8 USFS MAINTAINED TRAIL FROM SILVIS POWERHOUSE AT LOWER SILVIS LAKE TO UPPER SILVIS LAKE



PHOTO 6-9 LOWER SILVIS DAM RECREATION ACCESS AREA (PICNIC TABLES AND FIRE RING)

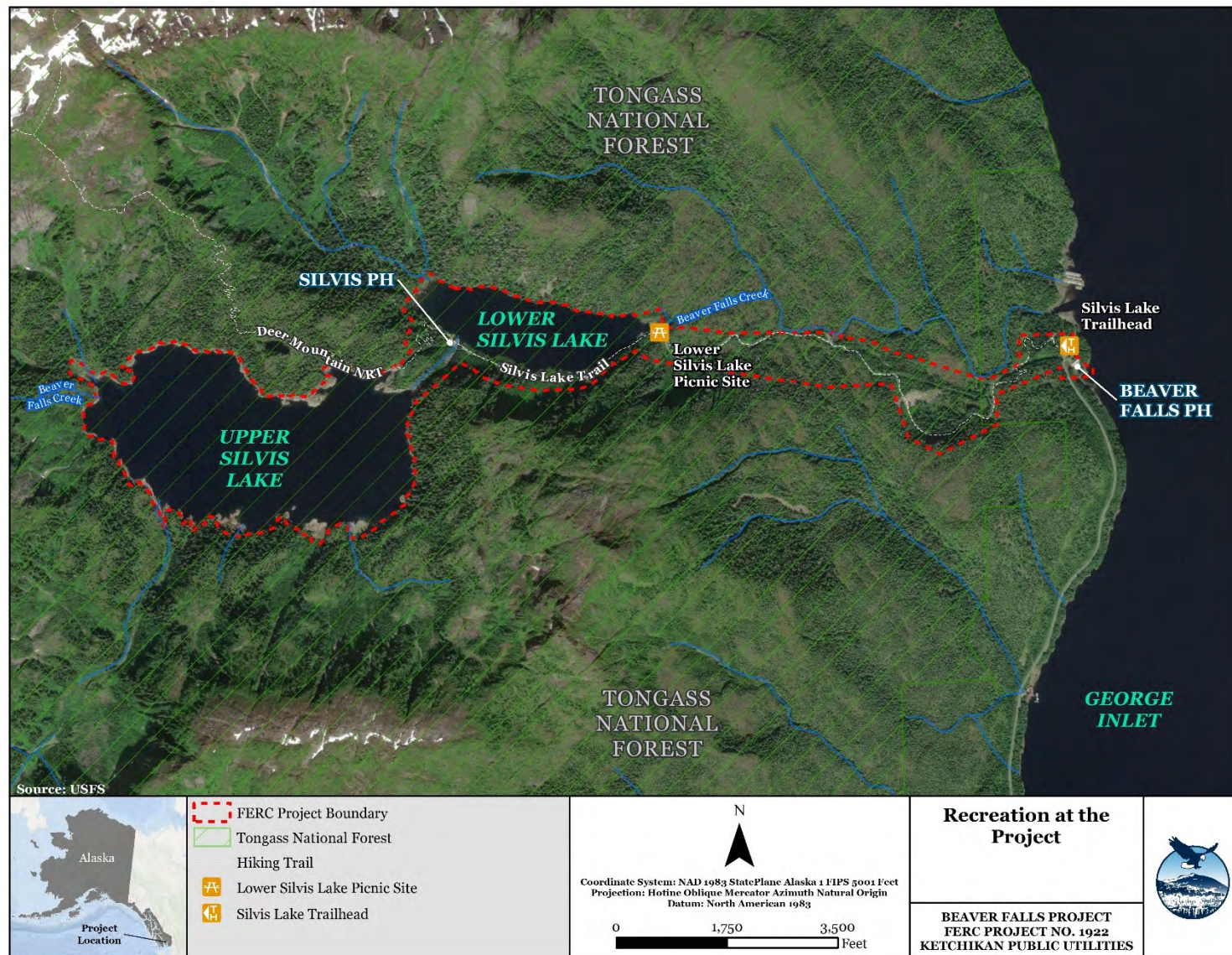


FIGURE 6-10 BEAVER FALLS PROJECT RECREATION SITES

6.9.2 REGIONAL RECREATION OPPORTUNITIES

Located within the largest U.S. National Forest and near a main cruise line port along the Inside Passage, recreation opportunities in the Project vicinity are diverse and cater to both locals and tourists (Figure 6-11). Activities within the general area include cultural exhibits, ziplining, nature viewing, camping, boating, paddling, hunting, fishing, and hiking. According to statistics maintained by the Ketchikan Visitors Bureau, over 1.1 million visitors traveled to the Ketchikan area in 2018 between May and September with many coming to experience the plethora of immediately accessible outdoor opportunities (KVC 2018).

6.9.2.1 FEDERALLY MANAGED RECREATION OPPORTUNITIES

Tongass National Forest: Ketchikan-Misty Fjords Ranger District

The TNF was created by executive order in 1907 by President Theodore Roosevelt (EB 2019). At 16.7 million acres, covering 500 miles north to south and 150 miles east to west, the TNF is the largest national forest in the United States (Figure 6-8). Primarily undeveloped and sparsely populated, the TNF supports a diverse array of wildlife and plant species in a rugged environment consisting of islands, mountains and glaciers. Included within the TNF are sixteen designated wilderness areas, one national monument wilderness, as well as the largest intact temperate rainforest on earth (USFS 2016).

Due to its massive size, management of the national forest is divided into ten ranger districts: Craig, Thorne Bay, Wrangell, Petersburg, Sitka, Hoonah, Juneau, Yakutat and Ketchikan-Misty Fjords. Management of land and resources within these areas is guided by the 2016 Tongass Forest Plan (Figure 6-9) (USFS 2016). The Ketchikan-Misty Fjords District allows for the following recreation activities to occur: day hiking, backpacking, hunting, boating, cabin rentals, campground camping, picnicking, horse riding, fishing, mountain climbing, off highway vehicle trail riding, wildlife viewing, cross country/downhill skiing.

Misty Fjords National Monument Wilderness

Created in 1978 by President Jimmy Carter, the 2.1 million-acre Misty Fjords National Monument Wilderness is the largest wilderness area in the TNF, the second largest wilderness in the United States, and part of the largest temperate rainforest in the world (Figure 6-9) (USFS 2016). The National Monument Wilderness designation was granted due to the area's unique

ecosystem, biology, and as a means to maintain the combined ecological integrity of the complete range of coastal to interior climates and ecosystems (USFS 2016). The National Monument is located over 10 miles from the Beaver Falls Project and is open to primitive hiking, backpacking, climbing, boating, horse packing, camping, and cabin rentals.

6.9.2.2 STATE MANAGED RECREATION OPPORTUNITIES

The Alaska Division of Parks and Outdoor Recreation manages 121 parks ranging in size from 0.5 to 1.6 million acres (ASP 2006). Alaska Parks also administers the Office of History and Archaeology, Alaska Trails, Office of Design and Construction, and the Office of Boating Safety. Within the vicinity of the Project, there are three Alaska State Parks available to the public (Figure 6-11).

Totem Bight State Historical Park

Listed on the National Register of Historic Places in 1970 and located approximately 22 miles northwest of the Beaver Falls Project on the Tongass Highway, the 33-acre Totem Bight State Historical Park includes original and replica Tlingit and Haida totem poles, as well as a replica clan house (DNR 2013). Initiated in 1938 by the Civilian Conservation Corps (CCC), under supervision of the USFS, a program was created to restore existing totem poles and create a replica village near Ward Cove, Alaska. Although the replica village was never completed due to the onset of World War Two, the CCC was able to restore multiple totem poles as well as the replica clan house. (DNR 2013)

Refuge Cove Recreation Site

Refuge Cove is a day use recreation site encompassing 13 acres of park land. The Cove is located approximately 21 miles west of the Beaver Falls Project on the Tongass Highway and amenities include nine picnic sites, a picnic shelter, and multiple fire ring grills (DNR 2019).

Settlers Cove State Recreation Park

Settlers Cove is located approximately 31 miles northwest of the Beaver Falls Project at the northern terminus of the Tongass Highway. At over 275 acres, the park includes a multitude of amenities consisting of 13 campsites for tents and RVs, picnic sites and shelters, potable water, toilets, hiking trails, fishing, and ADA access to many of the facilities (DNR 2019).

6.9.2.3 LOCALLY MANAGED RECREATION OPPORTUNITIES

The Ketchikan Gateway Borough maintains nine city parks, beaches, and trails available to the public year-round. These public spaces provide easily accessible opportunities for residents and tourists to experience part of the Southeast Alaska outdoor experience on the local road system.

City Park

Located adjacent to Ketchikan Creek and approximately 13 miles southwest of the Beaver Falls Project, Ketchikan's City Park offers opportunities for fishing, hiking, nature viewing, picnic tables and benches (COK 2019).

Alder Park

Alder Park is located near downtown Ketchikan, 15 miles southwest of the Beaver Falls Project. The park includes benches, picnic tables, restrooms, a pavilion for larger groups, and pet station (COK 2019).

Whale Park

Located in the heart of Ketchikan, Whale Park provides a small ADA accessible path and benches. Additionally, Whale Park includes the Chief Kyan Totem Pole and Tongass Historical Society Clock (COK 2019).

Tunnel/Eagle Park

A small public park is located 13 miles southeast of the Beaver Falls Project in downtown Ketchikan.

Rotary Beach

Also known as "Bugge Beach," Rotary Beach includes a cement causeway which traps outgoing tidewater allowing the temperature to warm in a protected pond (AK 2019). The beach is located nine miles from Beaver Falls Project on the South Tongass Highway.

South Point Higgins Beach

Located 25 miles northwest of Beaver falls along the Tongass Highway south of the town Clover Pass.

Rainbird Trail

Located on the campus of the University of Alaska Southeast campus, approximately 15 miles from the Beaver Falls Project, this trail provides a short hike through the nearby forest offering views of Ketchikan and the surrounding waters (EK 2019).



FIGURE 6-11 RECREATIONAL RESOURCES IN THE PROJECT VICINITY

6.9.3 RECREATION NEEDS IDENTIFIED IN MANAGEMENT PLANS

Management plans that cover recreation resources within the vicinity of the Beaver Falls Project are summarized below.

North to the Future Alaska's Statewide Comprehensive Outdoor Recreation Plan 2016-2021

Alaska's Statewide Comprehensive Outdoor Recreation Plan (SCORP) provides government agencies, communities, and nonprofits with a reference for outdoor recreation preferences, use trends, and issues relevant to Alaska through 2021; identifies statewide capital investment priorities for acquiring, developing, and protecting outdoor recreation resources; identifies the state's priorities and strategies for Land and Water Conservation Fund (LWCF) funding; and provides information that agencies and communities need to ensure their project proposals are eligible for LWCF assistance. Goals of the SCORP that may be of relevance to the Beaver Creek Project include: increase participation in outdoor recreation; maintain sustainable outdoor recreation infrastructure; and ensure future funding and support for outdoor recreation (ADNR 2016).

Tongass National Forest Land and Resource Management Plan 2016

The Tongass Forest Plan guides natural resource management activities and establishes management direction for the Tongass National Forest. The recreation goal (also tied to tourism) identified in the Forest Plan is to provide a range of recreation opportunities consistent with public demand, emphasizing locally popular recreation places and those important to the tourism industry. Objectives include: manage the Forest's recreation settings in accordance with the Recreation Opportunity Spectrum Standards and Guidelines for each Land Use Designation (LUD); maintain existing Forest Service system trails to a standard that provides for the health and safety of all users; and maintain existing recreation sites and facilities to provide for the health and safety of all users (USFS 2016).

Ketchikan Gateway Borough Comprehensive Plan 2020

The Ketchikan Gateway Borough Comprehensive Plan (Comprehensive Plan), published in 2009, is a long-range document that memorializes the vision of the community and the leadership of the Ketchikan Gateway Borough. The Comprehensive Plan's goal in relation to recreation is to provide recreational opportunities adequate to serve the present and future population of the Borough, including permanent residents and visitors. The four recreation objectives of the plan are: provide adequate active recreation facilities at Borough owned and non-Borough owned neighborhood and community parks; revise land development regulations to permit and facilitate park-related development activities at Borough-owned sites; support access to publicly-owned recreation and open spaces areas and facilities, including beach and shoreline areas; and support the use of publicly-owned recreation for activities such as fishing, hunting, hiking, and passive recreation uses (KGB 2009).

U.S. Department of Agriculture Ketchikan-Misty Fiords Outfitter and Guide Management Plan

The Ketchikan-Misty Fiords Outfitter and Guide Management Plan Environmental Impact Statement, analyzed the effects of four alternatives for allocating special use permits to outfitters and guides on the National Forest System lands within the Ketchikan-Misty Fiords Ranger District (KMRD), based on visitor capacity (USDA 2011). In the final record of decision, the preferred alternative was selected, which allocated 50,671 service days annually for outfitter and guide recreational use on National Forest Systems Lands within KMRD and includes adaptive management. The plan did not affect unguided visitors. Under the decision, all outfitter and guide operations are subject to area-wide and site-specific management elements and mitigation measures to protect natural and historic resources and minimize crowding and conflicts between guided and unguided visitors (KMFO 2012).

Alaska Department of Natural Resources Central/Southern Southeast Area Plan, November 2000

The Central/Southern Southeast Area Plan (Plan) determines management intent, land-use designations, and management guidelines that apply to all state lands in the planning area (Sumdum-Stephens passage region to Ketchikan region). The Plan states that lands will be provided for accessible outdoor recreational opportunities with well-designated and conveniently located recreational facilities. In addition, undeveloped lands are to be provided for recreational pursuits. Recreational opportunities will be realized by: developing a state park system of recreation areas, trails, waysides, rivers and sites which provide a wide range of year-round outdoor recreation opportunities for all; providing recreation opportunities on less developed land and water areas; assisting communities through cooperative planning, conveyance of state lands, and grants-in-aid for parks and trails within population centers; encouraging commercial development of recreational facilities and services while minimizing environmental impacts; and protecting recreation resources (ADNR 2000).

6.9.4 NATIONAL WILD AND SCENIC RIVER SYSTEM OR STATE-PROTECTED RIVER SEGMENT

The National Wild and Scenic Rivers System was created in 1968 by Congress (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve specific rivers with outstanding natural, cultural, and recreation values in a free-flowing condition for the enjoyment of present and future generations (NPS 2018). Beaver Falls Creek is not designated as a National Wild and Scenic River (NPS 2018). This Project is not located within or adjacent to a river segment designated as part of, or under study for inclusion in, the National Wild and Scenic River System or State-protected river segment.

6.9.5 NATIONAL TRAIL SYSTEM OR WILDERNESS AREA DESIGNATION

The National Trails System Act of 1968 (Public Law 90-542; 16 U.S.C. §1241) was created to promote the preservation and appreciation of natural and historic places in the United States as well as to support increasing outdoor recreation needs. Within the act, four categories of trails are recognized: (1) National Recreation Trails, (2) National Scenic Trails, (3) National Historic Trails, and (4) Connecting or Side Trails.

Although not located on Beaver Falls Project lands, the nearby Deer Mountain Trail (USFS #927060) was designated as a National Recreation Trail in 1978 (Figure 6-11). Deer Mountain

Trail begins 0.5 miles east of the City of Ketchikan and continues for approximately 10.7 miles to Upper Silvis Lake, at the Beaver Falls Project Boundary. From its terminus, the trail connects to the Silvis Lakes Trail and continues to the Beaver Falls Powerhouse parking area. The trail is located within the TNF and is managed and maintained by the KMRD (USFS 2019b).

The Wilderness Act of 1964 established the National Wilderness Preservation System and instructs federal land management agencies, such as the National Park Service (NPS), Bureau of Land Management (BLM), USFWS and USFS, to manage wilderness areas and preserve wilderness character. There are no Wilderness Areas located within the Beaver Falls Project boundary; however the nearest wilderness area is the Misty Fjords National Monument Wilderness located over 10 miles away from the Beaver Falls Project (USFS 2019).

6.9.6 LOCAL LAND USE AND MANAGEMENT ADJACENT TO THE PROJECT

6.9.6.1 LAND USE

The USFS LUDs within and adjacent to the FERC Project boundary are identified as semi-remote recreation and old growth habitat, allowing for less impactful forms of recreation, minimal development, and preservation of a more natural environment.

Additional land use data was gathered from the Multi-Resolution Land Characteristics (MRLC) Consortium's 2019 s National Land Cover Database (NLCD), which provides land use information by generalizing land cover within the area and is depicted below in Figure 6-12 (MRLC 2019). As summarized in Table 6-15, predominant land cover within a half-mile of the FERC Project boundary is evergreen forest followed by shrub/scrub.

TABLE 6-15 LANDCOVER TYPES WITHIN A HALF-MILE OF THE BEAVER FALLS PROJECT BOUNDARY

LAND COVER TYPE	ACRES	PERCENTAGE
Barren Land, Rock/Sand/Clay	36.8	1.1 %
Deciduous Forest	31.9	0.9 %
Developed, Low Intensity	45.8	1.4 %
Dwarf Scrub	54.7	1.6 %
Evergreen Forest	1254.9	37.3 %
Mixed Forest	395.3	11.8 %

LAND COVER TYPE	ACRES	PERCENTAGE
Open Water	555.1	16.5 %
Perennial Ice/Snow	5.8	0.2 %
Shrub/Scrub	981.6	29.2 %

Source: MRLC 2019

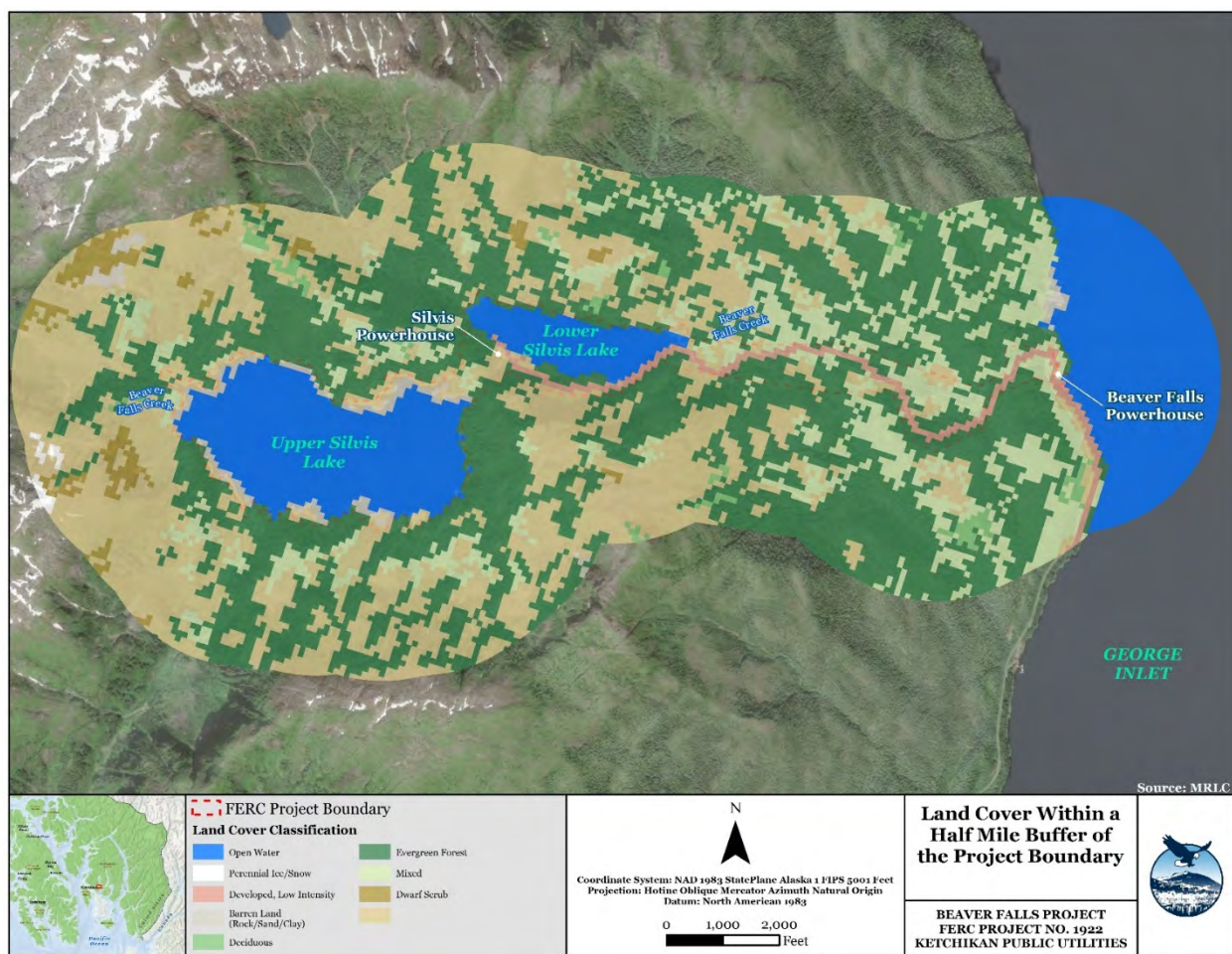


FIGURE 6-12 LAND COVER WITHIN A HALF MILE BUFFER OF THE PROJECT BOUNDARY

6.9.6.2 LAND MANAGEMENT

Lands within and surrounding the Project area are managed by the USFS KMRD and the Cape Fox Corporation, an independently owned Alaskan Native Corporation (ANC).

USFS KMRD Land Management

Lands of the USFS are managed in accordance with the 2016 Tongass Forest Plan (USFS 2016). The plan provides guidance for the management of resources, desired conditions and goals, management prescriptions as well as priority of direction in the event of conflict. Lands within the Project boundary are managed as a Semi-Remote Recreation LUD (Figure 6-13). Lands within the immediate vicinity of the Project area are separated into two different LUDs: Semi-Remote Recreation and Old-Growth Habitat (Figure 6-13). A summary of the LUD goals, objectives, and desired conditions from the Tongass Forest Plan are as follows:

Semi-Remote Recreation LUD

Goals: To provide predominantly natural or natural-appearing settings for semi-primitive types of recreation and tourism, and occasional enclaves of concentrated recreation and tourism facilities. To provide opportunities for a moderate degree of independence, closeness to nature, and self-reliance in environments requiring challenging motorized or non-motorized forms of transportation.

Objectives: Manage recreation and tourism use and activities to meet the levels of social encounters, on-site developments, methods of access, and visitor impacts indicated for the Semi-Primitive Recreation Opportunity Spectrum (ROS) classes. Enclaves of concentrated recreation and tourism developments within the LUD or management activities in adjacent LUDs may cause the ROS setting to become Rural.

Apply the Moderate Scenic Integrity Objective to any developments, facilities or structures.

Desired Condition: Characterized by generally unmodified natural environments. Ecological processes and natural conditions are only minimally affected by past or current human uses or activities. Users have the opportunity to experience a moderate degree of independence, closeness to nature, solitude, and remoteness, with some areas offering motorized opportunities and others non-motorized opportunities (except for the traditional uses of boats, aircraft, and snow machines). Interactions between users are infrequent. Facilities and structures may be minimal or occasionally may be larger in scale, but will be rustic in appearance, or in harmony with the natural setting.

Old Growth Habitat LUD

Goals: Maintain areas of old-growth forests and their associated natural ecological processes to provide habitat for old-growth associated resources. Manage early seral

conifer stands to achieve old-growth forest characteristic structure and composition based upon site capability. Use old growth definitions as outlined in Ecological Definitions for Old-growth Forest Types in Southeast Alaska (R10-TP-28).

Objectives: Provide old-growth forest habitats, in combination with other LUDs, to maintain viable populations of native and desired non-native fish and wildlife species and subspecies that may be closely associated with old-growth forests. Contribute to the habitat capability of fish and wildlife resources to support sustainable human subsistence and recreational uses. Maintain components of flora and fauna biodiversity and ecological processes associated with old-growth forests.

Allow existing natural or previously harvested early seral conifer stands to evolve naturally to old-growth forest habitats or apply silvicultural treatments to accelerate forest succession to achieve old-growth forest structural features. Consider practices such as thinning, release and weeding, pruning, and fertilization to promote accelerated development of old-growth characteristics. To the extent feasible, limit roads, facilities, and authorized uses to those compatible with old-growth forest habitat management objectives.

Desired Condition: All forested areas within this LUD have attained old-growth forest characteristics. A diversity of old-growth habitat types and associated species and subspecies and ecological processes are represented.

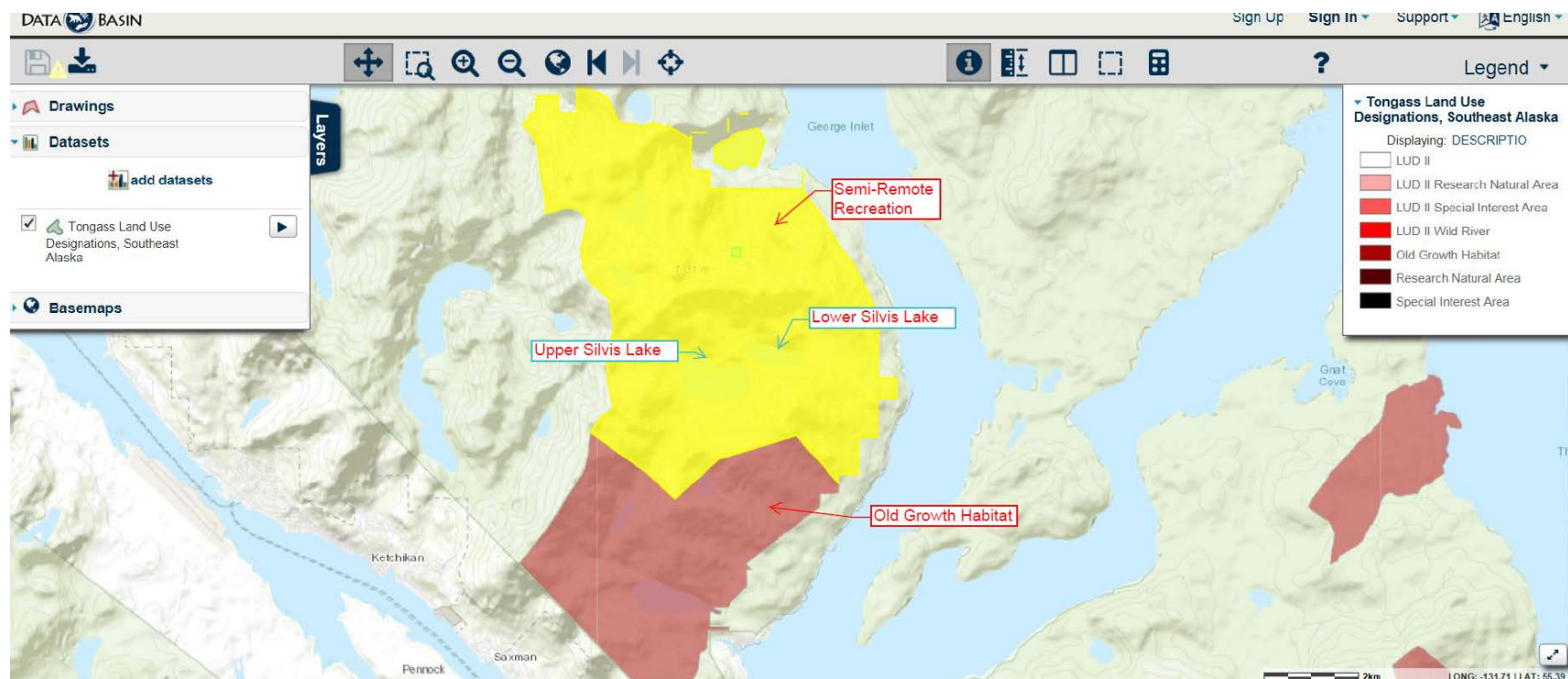


FIGURE 6-13 PROJECT AREA LUDs MAP (SOUTHEAST ALASKA GIS LIBRARY 2011)

Cape Fox Corporation Land Management

The Cape Fox Corporation (CFC) was established in 1971 following enactment of the Alaska Native Claims Settlement Act (43 USC 1601-1624 – Public Law 92-203) (ANCSA). The ANCSA authorized Alaskan Natives to receive title to 44 million acres of public land in the State of Alaska, as well as a cash settlement of \$962 million dollars to relinquish their claim to Alaska lands. Additionally, the act created a system of individual Alaskan Native Corporations to manage the associated lands and settlement monies (USFWS 2019).

The CFC, headquartered in nearby Saxman, Alaska, owns and manages lands adjacent to the Beaver Falls Project boundary, including the inoperative George Inlet Packing Company Cannery and associated caretaker's house, located directly north of the Beaver Falls Powerhouse (Figure 6-14). During a January 2019 Project site visit by the KPU relicensing team, attendees identified multiple permit notifications posted at the entrance to the CFC lands, indicating that commercial development of the old Cannery may occur in the near future.

In 1984, 38.32 acres of land within the Beaver Falls Project boundary were subject of an interim conveyance, under the ANCSA of 1971 to the CFC. Conveyance of the lands to the CFC effectively placed KPU in violation of Article 26 of their 1945 FERC license. Following multiple years of negotiation, in 2000 KPU and CFC negotiated a Settlement Agreement, in which the Project lands originally selected by CFC under ANCSA were conveyed to KPU, with easements for CFC developments near the Project (i.e. the old George Inlet Packing Company Cannery).

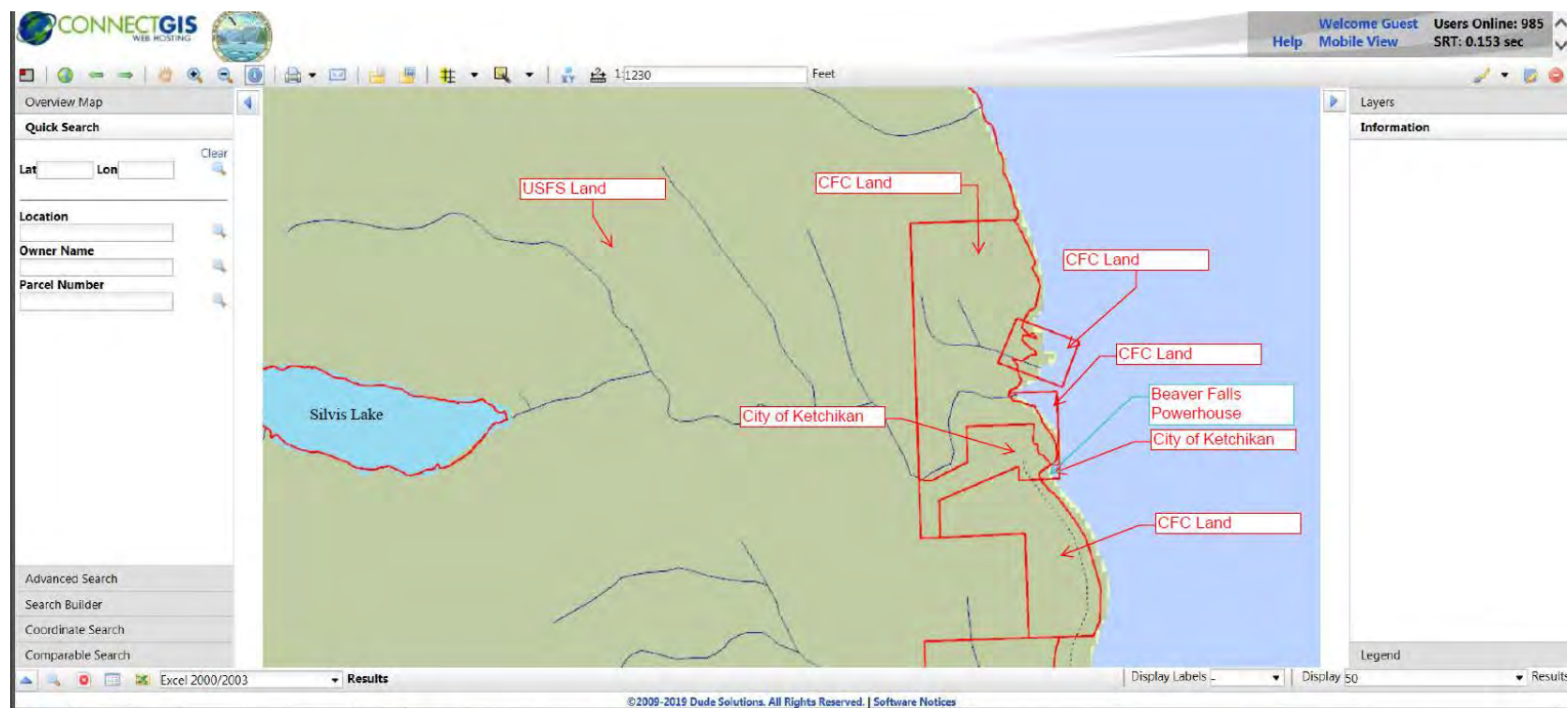


FIGURE 6-14 LAND OWNERSHIP SURROUNDING THE BEAVER FALLS POWERHOUSE (CITY OF KETCHIKAN 2019)

6.9.7 MANAGEMENT OF LANDS WITHIN THE PROJECT BOUNDARY

Lands within the Project boundary are almost entirely owned by the USFS, with a smaller section of land owned by the City of Ketchikan at the terminus of the South Tongass Highway (Figure 6-14). USFS lands are managed under the guidance of the 2016 Tongass Forest Plan and are managed as Semi-Remote Recreation Lands. Although KPU maintains the Project components that reside within the Project boundary, the USFS maintains the portion of the Silvis Trail that leads from the Silvis Powerhouse to Upper Silvis Lake. KPU provides annual funds for the USFS to perform trail maintenance. As dictated by license Article 104, KPU and USFS meet annually to discuss management of the Beaver Falls Project lands. Approximately every five years, KPU and USFS update a maintenance agreement regarding funds allotted for the foot trail maintenance.

The City's portion of land includes an access bridge, the Beaver Falls Powerhouse, equipment maintenance shed, and recreation parking area. The Project boundary encompasses only those lands necessary for Project operations and maintenance at the dams and up to the maximum normal water surface elevation of the reservoirs. Within the Project boundary, KPU maintains the dual use access road/Silvis Trail up to the Silvis Powerhouse, picnic tables, fire rings, bear-proof trash receptacles, outhouse, and picnic access stairway for public use.

When weather conditions permit, lands within the Project boundary are inspected weekly by KPU personnel. As part of the inspections, KPU staff empty trash receptacles and clean and stock the pit toilet located near the Lower Silvis Lake Dam. Pumping of the pit toilet is conducted on an as-needed basis. The dual use Silvis Trail access road is brushed annually and repaired and resurfaced when conditions warrant. KPU also maintains the trailhead parking area and the recreation log book adjacent to the Beaver Falls Powerhouse.

6.9.7.1 SHORELINE BUFFER ZONE AND MANAGEMENT PLAN

The Beaver Falls Project does not currently have a Shoreline Buffer Zone or Shoreline Management Plan. Article 204 of the existing license allows limited shoreline improvements within the Project area including landscape planting, non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than ten watercraft at a time; as well as erosion control structures without Commission approval.

6.9.8 REFERENCES

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6.10 AESTHETIC RESOURCES

6.10.1 VISUAL CHARACTER OF PROJECT LANDS AND WATERS

The TNF (Figure 6-8) is the largest national forest in the United States and covers most of southeast Alaska (USDA 2019). The TNF is home to many wildlife resources including eagles, bears, and salmon, and tourists can participate in sled-dog rides, fish in nearby streams or the ocean, or visit a glacier (USDA 2019). The TNF has more than 5,750,000 acres of open wilderness that covers approximately one-third of the entire forest. The TNF also contains five bear-viewing areas, one of which is on the southern portion of Revillagigedo Island, only a few miles away from the Beaver Falls Project.

The Beaver Falls Project is located within and is almost entirely surrounded by the TNF (95% of Project boundary is within the Forest), a maritime forest known for its stunning vistas. The Beaver Falls Project aesthetics are remote in nature and range from mountain-top lakes to coastal rainforest.

6.10.1.1 SILVIS DEVELOPMENT

The Silvis Development includes the dam (Photo 6-10), spillway, reservoir (Upper Silvis Lake) (Photo 6-11), an underground tunnel and penstock, a single-unit powerhouse (Photo 6-12), and a transmission line. Upper Silvis Lake has a normal maximum water surface elevation of 1,154 feet msl, and a storage capacity of 38,000 acre-feet. Upper Silvis Lake is a one-mile long natural lake with a surface area of 300 acres.

The Silvis Development was constructed in the late 1960s and the powerhouse was reconstructed in the mid-1970s. The powerhouse is a reinforced concrete structure, approximately 30-feet by 40-feet by 20-feet-high. To access the Silvis Powerhouse, the dual use Silvis Lakes Trail is utilized by KPU staff. As afore noted, the Silvis Lakes Trail is also a popular trail for recreationists who enjoy using it for hiking and sightseeing. Along this hike, visitors can see “remnants of an old cannery...dense forest of Sitka Spruce, western hemlock and western redcedar” (USDA 2013). The trail meanders through muskeg (wetlands) and alpine meadows which offer birding opportunities. There is ample scenery surrounded by mountain peaks and waterways (USDA 2013). The dual use trail terminates at the Silvis Powerhouse and then turns into a primitive hiking trail that takes hikers to Upper Silvis Lake. The trail then connects hikers

to the USFS Deer Mountain-John Mountain trail system that takes hikers approximately 12-miles (one way) to the City of Ketchikan. As afore noted, the Deer Mountain Trail (USFS #927060) was designated as a National Recreation Trail in 1978.



PHOTO 6-10 UPPER SILVIS DAM AND LAKE IN BACKGROUND



PHOTO 6-11 UPPER SILVIS LAKE



PHOTO 6-12 SILVIS POWERHOUSE

Beaver Falls Development

The Beaver Falls Development includes a dam (Photo 6-13), spillway, reservoir (Lower Silvis Lake) (Photo 6-14), a diversion dam (Photo 6-15), two power conduits, a powerhouse with three active (and one decommissioned) generating units (Photo 6-16), and a switchyard. The Beaver Falls Powerhouse is located along the shoreline of George Inlet and was originally constructed in 1946. The powerhouse is a reinforced concrete structure, approximately 30-feet by 147-feet- by 25-feet-high.

The Lower Silvis Dam impounds the naturally occurring Lower Silvis Lake which is operated at the normal maximum water surface elevation of 827 feet msl. Lower Silvis Lake is a 0.8-mile long natural lake surrounded by coastal marine forest land. KPU seasonally maintains picnic tables, trash receptacles, fire rings, and a toilet at the eastern side of Lower Silvis Lake.



PHOTO 6-13 LOWER SILVIS DAM



PHOTO 6-14 LOWER SILVIS LAKE



PHOTO 6-15 BEAVER FALLS CREEK DIVERSION DAM



PHOTO 6-16 BEAVER FALLS POWERHOUSE

6.10.2 NEARBY SCENIC ATTRACTIONS

Alaska Marine Highway System

The Alaska Marine Highway System (AMHS) connects over 3,100 miles of coastal cities and communities in the State of Alaska via ferry system (ADOT 2019). The Inside Passage, which spans from the Queen Charlotte Islands of British Columbia to Skagway, contains “dramatic fjords, pristine islands, and forests” (ADOT 2019). All routes along the AMHS are considered, collectively, an “All-American Road,” signifying they have met at least two or more of six intrinsic qualities varying from archeological, cultural, historical, natural, recreational or scenic values. The AMHS passes along the western coast of the Revillagigedo Island directly in front of Ketchikan, which is approximately 7 miles from the Beaver Falls Project Powerhouse (Figure 6-15).

Totem Bight State Historical Park

Totem Bight Park is a 33-acre state park located north of Ketchikan. Historically, Totem Bight was a traditional Native campground known as Mud Village and Mud Bight Village (NPS 1970). The park contains a collection of Haida and Tlingit style totem poles, and a replica of an early nineteenth century aboriginal chieftains' house or community/clan house (NPS 1970; ADNR

2019; DNR 2013). The totem poles were part of a Civilian Conservation Corps (CCC) project to build the community house and place fifteen 19th-century replica poles at the park. Of the poles at the site, only one is original (the halibut pole) (Photo 6-17), which stood until 1970. It is now located at the Totem Heritage Center in Ketchikan.



Source: Alaska Digital Archives 1959

PHOTO 6-17 HALIBUT POLE ORIGINALLY LOCATED AT TOTEM BIGHT STATE PARK

Creek Street

Creek Street is a historic boardwalk that sits atop pilings on the banks of Ketchikan Creek in downtown Ketchikan. Visiting Creek Street is a popular tourist outing in present day Ketchikan, known for its restaurants, shops, private dwellings and salmon viewing. Creek Street is also known for its history, in the early 1900s, as the historic red-light and bootlegging (during prohibition) district. Canadian whiskey was rowed in during high tide to supply prostitution houses and backroom saloons (Experience Ketchikan 2009-2018).

Trails off Creek Street provide scenic views of the town and harbor, including the Tongass Narrows waterway, Deer Mountain, and the Thomas Basin Marina (Fish Creek Company 2009).



Source: Fish Creek Company 2009

PHOTO 6-18 HISTORIC CREEK STREET IN KETCHIKAN, ALASKA. PHOTO BY HAMILTON GELHAR

Totem Heritage Center

The Totem Heritage Center contains artistry from the traditions of the Tlingit, Haida, and Tsimshian peoples, the cultures that gave rise to the totem poles on display at the center (City of Ketchikan 2019). Visitors can take classes in carving, basketry, weaving, and regalia-making. Located around 1 mile from downtown Ketchikan, the Totem Heritage Center is often visited by visitors coming to Ketchikan on cruises (City of Ketchikan 2019).

Scenic Lakes

As shown in Figure 6-15, the Project is surrounded by many small lakes nestled throughout the lower portion of Revillagigedo Island. The largest lakes by area near the Beaver Falls Project are Mahoney Lake, Whitman Lake, Upper Ketchikan Lake, Lower Ketchikan Lake, Connell Lake, and Lake Perseverance.

Scenic Mountains

There are several large mountain peaks in the Project area including Mahoney Mountain (3,297 ft), Twin Peaks (2,907 ft), Northbird Peak (3,291 ft), John Mountain (2,976 ft), and Roy Jones Mountain (3,097 ft) (USGS 2017).

George Inlet and Tongass Narrows

George Inlet is a glacier-carved inlet that dissects the middle of Revillagigedo Island. The bedrock of the George Inlet is primarily black phyllite and slates of granite (USGS 1902).

The Tongass Narrows is a Y-shaped channel that extends from the Revillagigedo Channel to Gravina Island, and which borders the western side of Revillagigedo Island and the Ketchikan area. It is part of southeast Alaska's Inside Passage and the Alaska Marine Highway System and is navigated by charter boats, commercial fisherman, and is used for recreation purposes. Ferries, cruise ships, barges, and tankers also traverse the Tongass Narrows waterway. Fauna viewed in the Tongass Narrows includes whales, sea lions, seals, and bald eagles.

George Inlet Cannery

The George Inlet Packing Company Cannery opened in 1914 on the shores of the George Inlet waterway at the outlet of Beaver Falls Creek due to the huge demand for protein during World War I (Kiffer 2009; KVB 2016). Salmon was canned and shipped overseas. Fish were caught in fish traps, brought in by boats, and into the cannery via a fish elevator (KVB 2016). The Cannery was in operation until 1927, when it was sold to Libby, McNeil & Libby (MacDonald 2013). It reopened in 1934 when the main cannery was rebuilt adding a diesel engine, then closed during World War II, due to a lack of man power (EATKA 2019). It then reopened after WWII and operated until 1958. During its heyday, 200 people lived and worked at the cannery, including needed services like doctors, etc., in a self-contained community. The cannery holds unique salmon processing machinery and was purchased and preserved, now operating as a tourist attraction and giving public tours of its historic canning line (KVB 2016). Today, tours of the historic cannery are offered by local inns and tour operations (True Alaskan Tours 2019).



Source: USGS 2017; ADNR 1995.

FIGURE 6-15 AESTHETIC RESOURCES IN PROJECT VICINITY

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6.11 CULTURAL RESOURCES

6.11.1 HISTORY OF THE PROJECT VICINITY

6.11.1.1 PREHISTORIC CONTEXT

Campbell (1991) provided a cultural overview synthesized from several sources including the *Cultural Resources Overview of the Tongass National Forest, Alaska Part 1: Overview* (Arndt et al. 1987), Ackerman (1968, 1980), Ackerman et al. (1979), Ackerman et al. (1985), Davis (1980, 1984), Fladmark (1982), Holmes et al. (1989), and Roberts (1982). The culture chronology is divided into three periods, the earliest dates to the advent of the Holocene (8,000 to 9,000 years ago) when conditions were cooler than at present. Three sites in southeast Alaska fit into this period: Ground Hog Bay in northern southeast on the mainland, Hidden Falls in central southeast on Baranof Island, and Rice Creek in southern southeast on Heceta Island. Tool assemblages include microblades and cores, flake cores, scrapers, and choppers. These sites are all located on raised beaches.

The next period dates from about 5,000 to 8,000 years ago when conditions were warmer than at present. Sea levels continued to be unstable in this time period. Four sites fit into this period: Component 2 at Groundhog Bay, the Irish Creek site on Kupreanof Island in central southeast, the Chuck Lake Locality 1 on Heceta Island, and the Thorne River site on the east side of Prince of Wales Island. Artifact assemblages continued to be characterized as manufactured by “early man” (e.g., comprised of microcores and blades and other flaked stone tools). All of these sites are located on raised beaches. The Chuck Lake site includes a shell midden; analysis of the faunal remains indicated a reliance on littoral and maritime resources.

Sites dating from 5,000 years before present onward are typified by large, stratified shell middens. Shorelines began to stabilize, and cedar forests flourished. The classic Northwest Coast type of society emerged and was characterized by woodworking tools, salmon catchment technologies, and artistic expression. All sites are located adjacent to elevated or modern shorelines.

Campbell (1991) reported that one site in the Ketchikan vicinity had been subject to archaeological testing. Sponsored by the USFS in cooperation with the University of Alaska Southeast Ketchikan campus, Campbell’s work was still in progress at the time. Their team

documented several sites in the area including villages, camps, fish weirs, rock art, middens, culturally modified trees, totem poles, and burial sites.

6.11.1.2 ETHNO HISTORIC CONTEXT

As reported by Campbell (1991), the narrow strip of coast along the southeast Alaska panhandle and the Alexander Archipelago was occupied by the Tlingit Indians. In an earlier work, Campbell (1989) determined that about 200 years ago, the Haida, in response to internal strife caused by a failing resource base, emigrated from the Queen Charlotte Islands to south Prince of Wales Island. This triggered massive population movements on the part of the Tlingit – a migration still ongoing when the United States purchased Alaska from Russia in 1867.

The Tantaqoan (Tongass Tlingit) were expelled from their territory on South Prince of Wales Island; as they pushed eastward, they inflicted punishing battles upon their former neighbors and fellow kinsmen (the Sanyaqoan or Cape Fox Tlingit and the Xetlqoan). Another Tlingit group, the Xetlqoan, of whom virtually nothing is known other than that they formerly owned Revillagigedo Island, were also displaced. In the mid-19th century, as a result of a dispute that arose between the Xetlqoan and the Tantaqoan, the Xetlqoan abandoned their holdings in the Ketchikan area and banded with the Stikineqoan Tlingit in the vicinity of modern-day Wrangell. Exacerbating all of this disruption was the arrival of Euroamericans fur traders and the introduction of an alternate economic system, firearms, and epidemics. These new factors contributed much to the ongoing instability.

Traditional land use at George Inlet is poorly understood. Moser (1899) noted the presence of smokehouses dotting the shores of George Inlet. Ronald Olson, an anthropologist who worked among the Tlingit for over 30 years, only described the upper reaches of George Inlet; he noted a creek called Tahina k'u as being owned by the descendants of Oxwis (the Tantaqoan Daklawedih chief) (Olson 1967). In 1946, the Bureau of Indian Affairs interviewed elders throughout southeast Alaska. They learned that at one time, George Inlet was included in the Sanyaqoan territory but had been given over to the Tantaqoan (Goldschmidt and Haas 1946). They further noted that George Inlet was claimed by the Tantaqoan and such right was recognized by the Sanyaqoan – but both groups actually used it for hunting and fishing in the mid-20th century.

The most important finding by Campbell (1991) was that as recently as the 19th century, a vanquished population relinquished its claim to George Inlet to the victors and that a few decades later, acculturation of the entire Indian population began in earnest. Thus, the ethnographic record may be neither reliable nor comprehensive in its descriptions of past land use in the Project area. The absence of any mention of occupation of, or claims to, the Beaver Falls Creek does not necessarily preclude aboriginal use.

6.11.1.3 HISTORIC CONTEXT

Abundant fish and timber resources attracted non-Indians to Ketchikan. Ketchikan was positioned by geography, resources, and timing to become the historic gateway to Alaska in the late 1800s (NPS 2014). The area's protected waters and position on the Inside Passage meant that virtually all ships came through the area when water transport was key in Alaska. The first cannery opened in 1886 near the mouth of Ketchikan Creek, located in downtown Ketchikan, and four more were built by 1912. The Ketchikan Post Office was established in 1892. In the late 1890s, nearby gold and copper discoveries briefly brought activity to Ketchikan as a mining supply center (Explorenorth.com n.d.).

By 1936, seven canneries were in operation, producing 1.5 million cases of salmon annually (Explorenorth.com n.d.). The need for lumber for new construction and packing boxes spawned the Ketchikan Spruce Mills in 1903, which operated for over 70 years. Spruce was in high demand during World War II, and Ketchikan became a supply center for area logging. A \$55 million pulp mill was constructed at Ward Cove near Ketchikan in 1954 (Explorenorth.com n.d.). Its operation fueled the growth of the community. The mill's 50-year contract with the USFS for timber was canceled, and the pulp mill closed in March 1997 (Explorenorth.com n.d.).

As summarized by Campbell (1991), historic period use of the Beaver Falls area began in 1913 when the George Inlet Packing Company established a fishery on the north bank of Beaver Falls and began operations in 1914. This location is recorded as archaeological site KET-293. As documented by Guimary 1983 and Arndt et al. 1987, this company applied for and received a FERC License (FERC No. 206) on July 17, 1922. The cannery derived power from a small hydroelectric dam on the Beaver Falls Creek located below Lower Silvis Lake. The cannery was sold to Libby, McNiel, Libby, and the associated FERC license was transferred on December 26, 1928. In 1958, the cannery was purchased by Ward Cove Packing Company (Guimary 1983).

Although it ceased operations that year, it continued to have an on-site caretaker and the facility was used to store gear.

6.11.2 IDENTIFICATION OF HISTORIC AND ARCHEOLOGICAL SITES

6.11.2.1 BEAVER FALLS PROJECT VICINITY

Creek Street Historic District – National Register of Historic Places

Creek Street Historic District (NRIS-1400454; KET-0031), located along Ketchikan Creek in downtown Ketchikan, is listed in the National Register of Historic Places (NRHP) (NPS 2014). Ketchikan Creek with its bountiful salmon runs, abundant fresh water, and large watershed with hydropower potential, drew Natives and early settlers to its mouth. There in the early 1900s, on a confined narrow strip of steep land, small houses were built shoulder to shoulder on wood pilings over the creek and accessible only by a wood boardwalk called Creek Street (NPS 2014). The Creek Street area's special role in the development of Ketchikan has long been recognized by residents. First as the site of Tlingit Indian settlement for centuries and then in the early 1900s, Creek Street began 50 years of notoriety as the most infamous red-light district in the Territory of Alaska.

Chief Kashakes House – National Register of Historic Places

Chief Kashakes House (NRIS-93000338; KET-343) located in the City of Saxman, approximately 2.5 miles southeast of the City of Ketchikan, is listed in the NRHP (NPS 1993). It is a balloon-framed house which is a type of construction that was common in southeast Alaska in the late 1800s and early 1900s. It served as a clan house and is the only remaining one of its type of construction in Saxman and one of the last of its type standing in southeast Alaska (NPS 1993).

Saxman Totem Park – National Register of Historic Places

Saxman Totem Park (NRIS-79003758; KET-060) located in the City of Saxman, approximately 3 miles southeast of the City of Ketchikan, is listed in the NRHP (NPS 1979). The site was chosen as the best site for a spectacular collection of Tlingit carvings from abandoned towns and cemeteries of Tongass, Cat, Village, and Pennock Islands and Cape Fox Village. The Park contains both original and recarved totem poles and draws into one place examples of the best Tlingit totem pole carvings in southern Southeast Alaska. The park provides a unique

opportunity for Alaskans and visitors to see and study native carvings in a natural setting (NPS 1979).

George Inlet Packing Company Cannery – State Register

The George Inlet Packing Company Cannery, located just north of the Beaver Falls Powerhouse and outside of the Project boundary, is identified by the Alaska State Historic Preservation Office (SHPO) as KET-293. As summarized by Campbell (1991), historic period use of the Beaver Falls area began in 1913 when the George Inlet Packing Company established a fishery on the north bank of Beaver Falls and began operations in 1914.

6.11.2.2 BEAVER FALLS PROJECT BOUNDARY

The Beaver Falls Project was initially developed by the City of Ketchikan in 1946 (KPU 1991). The Project originally consisted of a timber crib dam at Upper Silvis Lake, the Beaver Falls Creek Diversion Dam, a 28-inch diameter penstock, and Beaver Falls Powerhouse containing Unit Nos. 1 and 2. A second phase of development occurred in 1954 and included construction of the Lower Silvis Dam, water conduits, and installation of Beaver Falls Powerhouse Unit Nos. 3 and 4. A third phase of development took place from 1967-1968, when the Upper Silvis Dam was replaced with a concrete-faced rock-fill structure, power conduits, and the Silvis Powerhouse were built. After one year of operation, the Silvis Powerhouse was destroyed in 1969 by a landslide. The powerhouse was later rebuilt in 1975-1976.

The Project's hydroelectric facilities date after World War II and have been modified extensively. During the previous relicensing effort, it was determined that there are no archaeological or historic sites eligible for inclusion in the NRHP within the Project boundary. As of 1991, neither relicensing the Beaver Falls Project (FERC No. 1922) nor upgrading the access road were determined to result in any direct or indirect impacts on cultural resources in the project boundary (Campbell 1991:25).

In the intervening years since 1991, elements of the built environment associated with the Beaver Falls Project have aged. Now, in 2019, some of these buildings and structures are over 50 years old.

6.11.3 PRIOR CULTURAL RESOURCE INVESTIGATIONS WITHIN THE PROJECT AREA

A cultural resources survey of the Beaver Falls Project was conducted by archaeologist Chris Rabich Campbell under subcontract to R.W. Beck and Associates, Inc. during the previous relicensing effort (hereafter Campbell 1991). An archaeological survey was conducted to determine the impact of continued Project operation on cultural resources. Archaeological surveys were conducted based on preliminary research which suggested that sites or features would be located in the uplands as well as along the modern coast, and that these sites or features might range in age from the early Holocene to the early 20th century. The surveyed area included the shoreline and beach fringe of the Project area as well as the access road, trail to Upper Silvis Lake, and the vicinity near the dam and the original outlet of Upper Silvis Lake.

A canoe landing at the outlet of Beaver Falls Creek (outside of the Project boundary) was identified as a result of the archaeological survey effort. This landing was assigned an Alaska Heritage Resource Survey designation KET-301. A field review on July 29, 1991 verified the presence of a waste dump associated with the 1946 construction; it has not been recorded as an archaeological site. A potentially historic house (“cottage no. 4”) with classic Craftsman period lines was identified in front of the Beaver Falls Powerhouse. The 1991 Campbell Report determined that neither relicensing the Beaver Falls Project nor upgrading the access road appears to result in any direct or indirect impact on cultural resources in the Project area.

On September 1, 1993, the Alaska SHPO (Judith E. Bittner) wrote to KPU concurring with Campbell’s (1991) report that no archaeological properties are present in the Project boundary. However, SHPO stated:

“A number of buildings are mentioned in the “Historical Use” section, but it is never made clear where they are in relation to project facilities or if in fact they are part of the project facilities. We do know that the powerhouse was reconstructed in 1975-76 and therefore is not eligible for inclusion in the National Register of Historic Places at this time. Four cottages are mentioned on pg. 13 but only one, cottage no. 4, is described at all. Cottage no. 4 is said to have been built in 1915-25 at a cannery at Hidden Inlet about 60 miles to the southeast of Ketchikan and moved to its present site in 1953. This cottage was not considered for National Register eligibility, presumably because it “had been moved some distance from its original location.” Moved buildings may be eligible and it appears that it should be evaluated.” (Letter from J. Bittner, State

Historic Preservation Officer, Department of Natural Resources, State of Alaska to R. Cornelius, Ketchikan Public Utilities, September 1, 1993).

KPU responded to SHPO's determination in a letter dated March 21, 1994 stating that "cottage no. 4 was sold and moved some time ago and KPU does not now own this cottage" (KPU 1994).

6.12 TRIBAL RESOURCES

After the sale of Alaska to the United States, Tlingit Indians protested the sale, arguing that they were the owners of their land. In 1912, Tanana chiefs asserted title to their lands in interior Alaska after white settlers began infringing on their territory. Tlingit and Haidas met in 1920 to begin efforts to regain their lands; they sued the United States in 1935 (when Congress passed a law allowing them to sue for lands lost), and won the case in 1959, receiving monetary compensation in 1968 (nativefederation.org n.d.; Arnold 1976).

In October 1966, more than 400 Alaska Natives representing 17 Native organizations gathered to address Alaska Native aboriginal land rights. A statewide organization was formed - The Alaska Federation of Natives (AFN). For its first five years, AFN worked primarily to achieve passage of a just and fair land settlement.

Congress passed the ANCSA of 1971 in response to a rise in native activism and pressure from oil companies to smooth the path for a trans-Alaska pipeline after oil was discovered in 1968. The act allotted 40 million acres of land for division among 12 regional native corporations and 220 village corporations. The law was intended to settle longstanding land claims by Alaska natives and provide economic opportunities. Alaska natives and descendants born before 1971 could receive 100 shares in their village corporation and regional corporation (propublica.org n.d.).

ANCSA was signed into law by President Richard Nixon on December 18, 1971, constituting at the time the largest land claims settlement in United States history. ANCSA was intended to resolve long-standing issues surrounding aboriginal land claims in Alaska, as well as to stimulate economic development throughout Alaska (nativefederation.org n.d.; Arnold 1976). ANCSA established Alaska Native claims to the land by transferring titles to 12 Alaska Native regional corporations and over 200 local village corporations. A thirteenth regional corporation was later created for Alaska Natives who no longer resided in Alaska. The act is codified as 43 U.S.C.

1601 et seq. Today there are 198 village corporations, according to the Alaska Division of Banking and Securities.

Tribes or tribal corporations having potential interest in the Beaver Falls Project relicensing include the Metlakatla Indian Community, the Cape Fox Corporation, SEALASKA Corporation, the Ketchikan Indian Corporation, and the Central Council of the Tlingit and Haida Indian Tribes. See Section 6.1.3 for more information pertaining to Indian tribes or tribal corporations that may be interested in the Project relicensing.

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6.13 TRIBAL RESOURCES

Federally recognized tribes or tribal corporations having potential interest in the Beaver Falls Project relicensing include:

- Metlakatla Indian Community (MIC)
- Cape Fox Corporation (CFC)
- SEALASKA Corporation
- Ketchikan Indian Corporation (KIC)
- Central Council of the Tlingit and Haida Indian Tribes

The MIC is a federally recognized Indian tribe. MIC lands are located on neighboring Annette Islands, which is the only federally recognized Indian reservation in the State of Alaska (Metlakatla Indian Community 2017; NCSL 2019). The KIC is a federally recognized Indian tribe that was incorporated in 1940 under the Indian Reorganization Act of 1934, as amended (NCSL 2019; KIC 2018). The KIC is the second largest tribe in the State of Alaska. The Central Council of the Tlingit and Haida Indian Tribes is also a federally recognized Indian tribe that represents Tlingit and Haida people in Southeast Alaska (NSCL 2019). The U.S. Congress passed an act in 1935 that formed the Central Council of the Tlingit and Haida Indian Tribes therefore recognizing the Tlingit and Haida people as a single tribe (CCTHITA 2019).

SEALASKA and CFC were established as products of the 1971 ANCSA. SEALASKA is a regional corporation and CFC is an ANC for the Village of Saxman (BLM 1987; SEALASKA 2019; CFC 2016). ANCs are included within the definition of an Indian tribe. As defined in 13 CFR 124.109, an Indian tribe is any Indian tribe, band, nation, or other organized group or community of Indians, including any ANC, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians, or is recognized as such by the State in which the tribe, band, nation, group, or community resides (SBA No Date). ANC-owned concerns are subject to the same conditions that apply to tribally-owned concerns, unless specified.

In accordance with 13 CFR 124.109 and Executive Order No. 13175⁷, KPU will consult with Indian tribes and ANCs, inclusive of the MIC, CFC, SEALASKA Corporation, and KIC throughout the relicensing process.

6.13.1 TRIBAL LANDS AND INTERESTS

As earlier noted in Section 6.9, in 2000 KPU and CFC executed a Settlement Agreement, in which the Project lands selected by CFC under ANCSA were conveyed back to KPU, with easements for CFC developments near the Project (ie. The old George Inlet Packing Company Cannery).

During a May 21, 2019 site visit, KPU identified that yellow cedar bark harvesting is occurring intermittently at varying places along the Project access road. Yellow cedar bark is used by the area's tribes for basket weaving.

At present, there are no known Project related impacts on tribal cultural sites. Pending Tribal consultation, KPU expects that ongoing Project operations will not affect Tribal cultural or economic interests, including any Project-induced soil erosion or Tribal cultural sites.

6.13.2 IDENTIFICATION AND CONSULTATION WITH TRIBES

Pending Tribal consultation, KPU anticipates that ongoing Project operations will not affect Tribal interests.

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6.14 SOCIOECONOMIC RESOURCES

6.14.1 GENERAL LAND USE PATTERNS

The Beaver Falls Project is located on the southwest coast of Revillagigedo Island and within the Ketchikan Gateway Borough (KGB) (Figure 4-1). The Borough is bordered by Prince of Wales Island on the west, Annette Island to the south, and shares a border with British Columbia, Canada, to the east (FEMA 2014). The three large primary cities in the KGB are located on Revillagigedo Island and include Ketchikan, Loring, and Saxman. Other populated areas in the Borough include Beaver Falls, Bell Island Hot Springs, Carlanna, Clover Pass, Dairy, Herring Cove, Mountain Paint, Mud Bay, Peninsula Point, Pennock Island, Port Higgins, Refuge Cove, Shoreline Drive, and Ward Cove (HTL 2019). The Project is located closest to the remote, but populated area of Saxman, which lies approximately 7.6 miles east-southeast from the City of Ketchikan and is owned by CFC.⁸

The KGB encompasses a total area of 6,654 square miles, where approximately 27% is water and 73% is land covered (KGB 2019). The majority of the landcover included in the KGB resides within the TNF, with the population having settled the coastal regions in Ketchikan, Loring, and Saxman. The following is a summary of socioeconomic data for the city, borough, and state which the Project is located, including population patterns, average household income, and employment sectors.

6.14.2 POPULATION PATTERNS

The Cities of Saxman and Ketchikan have populations of approximately 377 and 8,195, respectively (U.S. Census 2017). The population of the KGB is approximately 13,745 (U.S. Census 2017). Table 6-16 summarizes the population estimates for the City of Saxman, City of Ketchikan, KKGB, and for the state of Alaska, as reported in the 2000 and 2010 censuses, and as estimated by the U.S. Census Bureau for the year 2017.

⁸ “Cape Fox Corporation (CFC) was formed as part of the Alaska Native Claims Settlement Act (ANCSA) of 1971. In accordance with ANCSA, the US Federal Government returned the Alaska Natives (Eskimos, Indians, and Aleuts) 44 million acres and \$962.5 million in exchange for the termination of aboriginal land claims. ANCSA led to the development of 13 regional, 4 urban, and roughly 200 Native village corporations. Cape Fox Corporation is the Alaska Native Corporation for the village of Saxman” (CFC 2016).

TABLE 6-16 POPULATION ESTIMATES BETWEEN 2000, 2010, AND 2017 CENSUS FOR CITY OF SAXMAN, CITY OF KETCHIKAN, KETCHIKAN GATEWAY BOROUGH, AND STATE OF ALASKA

CITY/COUNTY/STATE	2000 CENSUS POPULATION	2010 CENSUS POPULATION	% CHANGE 2000-2010	2017 POPULATION ESTIMATES	% CHANGE 2010-2016
Saxman	431	411	-5%	377	-8%
Ketchikan	7,922	8,050	+2%	8,195	+2%
Ketchikan Gateway Borough	14,070	13,477	-4%	13,745	-2%
Alaska	626,932	710,231	+13%	738,565	+4%

Source: U.S. Census Bureau 2000abcd, 2010abcd, 2017abcd

The racial makeup of the KGB is approximately 68% White, 0.7% Black or African American, 14% Native American, 7% Asian (5.8% Filipino, 0.3% Chinese, 0.2% Japanese), 0.2% Pacific Islander (0.1% Hawaiian), 0.7% from other races, and 8.3% from two or more races (U.S. Census Bureau 2010). Approximately 4.3% of the population were Hispanic or Latino of any race (U.S. Census Bureau 2010). The primary language spoken in the Borough is English (90%), with secondary languages being Tagalo (6%), and Spanish (<2%) (MLA Language Map Data Center 2000).

6.14.3 PROJECT VICINITY EMPLOYMENT RESOURCES

As a major and first port of entry into Alaska, the economy in the KGB has historically been made up of the fishing, canning, tourism, government, and forestry industries (DataUSA 2018). In terms of specific occupations, the City of Ketchikan's 20 largest employers (in no particular order) are: Walmart Associates, Inc., Peace Health-Ketchikan General Hospital, Ketchikan Indian Corporation, Safeway, Ketchikan Gateway Borough School District, State Government, City of Ketchikan/City Hall, Ketchikan Gateway Borough, Community Connections, Inc., and Alaska Ship & Drydock, Inc., Alaska Department of Transportation & Public Facilities, Trident Seafoods, Williams, Alaska Department of Health & Social Services, U.S. Department of Agriculture (Forest Service), E.G. Phillips & Son, The Landing, Boyer Towing, Cape Fox Corporation, Alaska Airlines, and Alaska Rainforest Sanctuary (ADLWD 2011). From 2015 to 2016, employment in the KGB grew at a rate of 2.51%, from 6,655 employees to 6,822 employees (DataUSA 2018).

6.14.4 HOUSEHOLD/FAMILY DISTRIBUTION AND INCOME

The highest paying industries in the KGB are mining, quarrying, oil, gas extraction (\$120,250 average salary), administrative support, waste management services (\$68,125), and utilities (\$66,406) (DataUSA 2018). The median household income in the KGB is approximately \$64,162, annually. Table 6-17 shows household and workforce data for the KGB, in the Project vicinity.

TABLE 6-17 HOUSEHOLD AND WORKFORCE DATA FOR KETCHIKAN GATEWAY BOROUGH, ALASKA

	KETCHIKAN GATEWAY BOROUGH
2010 Households	5,305
2010 Percentage of Population in Civilian Workforce	69.1%
Median Household Income	\$67,321
Unemployment Rate	7%
Average Household Size	2.49

Source: U.S. Census Bureau 2010c

6.14.5 REFERENCES

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7.0 PRELIMINARY ISSUES, PROJECT EFFECTS, AND POTENTIAL STUDIES

7.1 ISSUES PERTAINING TO THE IDENTIFIED RESOURCES

The following is a list of preliminary issues KPU has identified based on available information and research, as well as information received from interested stakeholders as part of the Stakeholder Information Questionnaire (distributed on March 15, 2019) relating to ongoing operation of the Beaver Falls Project.

During the previous relicensing, KPU conducted various studies and potential impacts were reviewed and assessed by FERC, federal and state agencies, Indian tribes, and stakeholders. As a result, the Project's existing license includes protection, enhancement, and mitigation measures that were implemented to address Project effects such as implementation of recreation facilities and assessment of cultural resources. KPU is currently is not proposing any alterations to existing Project facilities or operations. KPU therefore anticipates minimal project-related issues and study needs associated with the current licensing proceeding.

During the public scoping process that begins with the Project's Joint Agency and Public Meeting (estimated for October 2019), federal and state resource agencies, non-governmental organizations, Indian tribes, and interested parties will have the opportunity to provide input and refine the resource issues to be analyzed in KPU's license application.

7.1.1 GEOLOGY AND SOILS

Continued operation of the Beaver Falls Project is not anticipated to have any adverse effects on geology and soil resources in the Project area. As discussed in Section 6.1, the shorelines surrounding Upper Silvis Lake and Lower Silvis Lake and the perimeter of the dual use access road/Silvis Trail consist of steep talus or forested slopes subject to erosion and/or occasional slide events. Given KPU proposes to continue operating the Project under the same operating regime and that the environment has adapted to the existing operating regime over the last 20 plus years, negative effects to the existing soil stability are not expected. KPU is not proposing any studies associated with this resource.

7.1.2 WATER RESOURCES

Continued operation of the Beaver Falls Project is not anticipated to have any adverse effects on water resources in the Project area. As discussed in Section 6.2, streamflow data for the Project was analyzed using the previous 1990s relicensing calculations and using 2007 calculations conducted by Hatch Acres. KPU additionally provided seepage data from the Upper Silvis Dam and the Lower Silvis Dam to help depict the amount of water flowing within the Beaver Falls Project area. The Beaver Falls Project area is not a system starved for water as Beaver Falls Creek is always wetted. Because Project operations or facilities have not changed over the course of the existing license and are not proposed to change, negative effects to the existing water quantity are not expected. KPU is not proposing any studies associated with this resource.

A water quality study was conducted during KPU's last relicensing effort in the 1990s and water quality samples were taken at Upper Silvis Lake, Lower Silvis Lake, and Beaver Falls Creek. The monitoring results demonstrated that waters of the Beaver Falls Project had very good water quality and either met or exceeded Class 1(C) water standards as currently defined by the ADEC. Given Project operations or facilities have not changed over the course of the existing license and are not proposed to change, negative effects to the existing water quality are not expected. KPU is not proposing any studies associated with this resource.

7.1.3 FISH AND AQUATIC RESOURCES

Continued operation of the Beaver Falls Project is not anticipated to have any adverse effects on fish and aquatic resources in the Project area. As discussed in Section 6.3, Upper and Lower Silvis Lakes currently host self-sustaining populations of rainbow trout. Beaver Falls Creek may also contain rainbow trout that may have at one point spilled over from Upper or Lower Silvis Lakes. Anadromous species access to Beaver Falls Creek has been precluded because an approximate 40-foot-high waterfall is present just above the mouth of the Creek. In accordance with pre-PAD consultation with the ADFG and NOAA, it has been confirmed that the natural gradient of the falls continues to preclude the establishment of an anadromous fish run in the Creek. George Inlet is classified as EFH for the varying salmon species found in the area. Given Project operations or facilities have not changed over the course of the existing license and are not proposed to change, negative effects to the existing fish and aquatic resources are not expected. KPU is not proposing any studies associated with this resource.

7.1.4 WILDLIFE RESOURCES

Continued operation of the Beaver Falls Project is not anticipated to have any adverse effects on wildlife resources in the Project area. As discussed in Section 6.5, wildlife species in the Project area are typical of southeast Alaska. Given Project operations or facilities have not changed over the course of the existing license and are not proposed to change, negative effects to the existing wildlife resources are not expected. KPU is not proposing any studies associated with this resource.

7.1.5 UPLAND BOTANICAL RESOURCES

As discussed in Section 6.6, although Alaska has historically been isolated by its climate and remote location from many invasive and noxious weed problems found in the majority of North America, the Beaver Falls dual use access road/Silvis Lakes Trail has been identified to host a variety of non-native and invasive plant species. The Alaska Exotic Plant Information Clearinghouse mapped and identified non-native and invasive plants along the Beaver Falls access road/Silvis Lakes Trail in 2004 and 2006. In order to further characterize the extent to which invasive plant species exist along the Project access road and understand further management and mitigation measures, KPU proposes to conduct an invasive plant species survey in conjunction with a rare plant species survey (See Sections 7.1.7 and 7.2 below). KPU will consult with stakeholders in the development of the study plan.

7.1.6 RIPARIAN, WETLAND, AND LITTORAL RESOURCES

Continued operation of the Beaver Falls Project is not anticipated to have any adverse effects on riparian, wetland, and littoral resources in the Project area. As discussed in Section 6.7, riparian and littoral habitat in the Project area are limited while wetland habitat consists of over 86 acres of defined wetlands. Given Project operations or facilities have not changed over the course of the existing license and are not proposed to change, negative effects to the existing riparian, wetland, and littoral resources are not expected. KPU is not proposing any studies associated with this resource.

7.1.7 RARE, THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES

As discussed in Section 6.8, the USFWS, USFS, and State of Alaska Natural Heritage Program do not identify any federally or state listed threatened or endangered species within the Project

area. Although the rare wildlife species identified by the USFS and the Alaska Natural Heritage Program may have the potential to occur within the Project area, continued project operations are not anticipated to negatively affect those species. The lesser round-leaved orchid, as identified by the USFS Regional Sensitive Species list, has been documented to occur on Revillagigedo Island and has the potential to occur within the Project area. Given the project access road is annually maintained and is utilized by recreationists, orchids located within the Project area may be impacted by ongoing maintenance and use activities. To characterize whether or not the lesser round-leaved orchid is present within the Project area, KPU proposes to conduct a rare plant species survey, focused on the lesser round-leaved orchid, in conjunction with an invasive plant species survey (See Sections 7.1.5 and 7.2). KPU will consult with stakeholders in the development of the study plan.

7.1.8 RECREATION AND LAND USE

Continued operation of the Beaver Falls Project is not anticipated to have any adverse effects on recreation resources in the Project area. As discussed in Section 6.9, KPU provides recreational facilities throughout the Project area and works proactively with the USFS to jointly maintain facilities. Given the Project area receives consistent recreation use and the picnic tables adjacent to the Lower Silvis Dam are old, as part of relicensing KPU proposes to replace the picnic tables provided at the Lower Silvis Dam recreation site with new picnic tables.

7.1.9 AESTHETIC RESOURCES

Continued operation of the Beaver Falls Project is not anticipated to have any adverse effects on aesthetic resources in the Project area. As discussed in Section 6.10, aside from Project facility components dating from the 1940s, 1950s, 1960s, and 1970s, a majority of Project lands are natural and contained within the TNF. Project lands are managed as TNF Semi-Remote Recreation Lands. Given Project operations or facilities have not changed over the course of the existing license and are not proposed to change, negative effects to the existing aesthetic resources are not expected. KPU is not proposing any studies associated with this resource.

7.1.10 CULTURAL RESOURCES

As discussed in Section 6.11, Project facility components were built in the 1940s, 1950s, 1960s, and 1970s, and are now over 50 years of age. Although a cultural resources survey inclusive of

archaeological surveys was completed during the previous 1990s relicensing effort, Project components are over 50 years of age and may be qualified as historic structures. As noted within the Alaska SHPO's Stakeholder Information Questionnaire response, Beaver Falls Project infrastructure may be historic and eligible for the NRHP. KPU therefore proposes to conduct a historic structures survey (See Section 7.2). KPU will consult with stakeholders in development of the study plan as well as the development of a Historic Properties Management Plan (HPMP) for ongoing preservation of project structures. Because an archaeological survey of the Project area was completed during the last licensing process and because Project components have not changed, KPU does not propose conducting an archaeological resources survey.

7.1.11 TRIBAL RESOURCES

Continued operation of the Beaver Falls Project is not anticipated to have any adverse effects on tribal resources in the Project area. As discussed in Section 6.13, the MIC, CFC, SEALASKA Corporation and KIC may have interest in the Project relicensing. Given Project operations or facilities have not changed over the course of the existing license and are not proposed to change, negative effects to the existing tribal resources are not expected. KPU is not proposing any studies associated with this resource, pending tribal consultation.

7.1.12 SOCIOECONOMIC RESOURCES

Continued operation of the Beaver Falls Project is not anticipated to have any adverse effects on socioeconomic resources in the Project area. As discussed in Section 6.14, the Ketchikan area economy is generally reliant on tourism, fishing, and government administration. Given Project operations or facilities have not changed over the course of the existing license and are not proposed to change, negative effects to the existing socioeconomic resources are not expected. KPU is not proposing any studies associated with this resource.

7.2 POTENTIAL STUDIES AND INFORMATION GATHERING

7.2.1 PROPOSED STUDIES

Rare Plant and Invasive Species Survey – KPU proposes to conduct a study to identify and map the distribution of lesser round-leaved orchids as well as invasive/noxious plant species located within the Project boundary. KPU proposes to survey along the perimeter of the dual use access road/Silvis Trail as this area is widely used by recreators and is also subject to annual

maintenance activities. KPU additionally proposes to survey around other disturbed areas or areas utilized by the public inclusive of Upper Silvis Dam access area, Lower Silvis Dam access area/recreation facilities, and the Beaver Falls Powerhouse parking area. KPU's study will primarily target the lesser round-leaved orchid and will identify any other rare plant species or invasive plant species present during the survey effort. Spatial data generated by this survey effort will help to provide a framework for KPU to develop a management plan for the management of rare plant species and invasive/noxious species when doing maintenance activities. KPU proposes to consult with the USFS, USFWS, and ADFG in development of this study plan and development of the management plan.

Historic Structures Survey – As recommended by the Alaska SHPO, KPU proposes to conduct a Historic Structures Survey for Project structures older than 50-years of age. KPU proposes to complete a National Register of Historic Places Nomination Form as part of the survey to identify if any Project structures are qualifying structures. KPU proposes to consult with the USFS and Alaska SHPO in development of this study plan.

7.2.2 PROPOSED PROTECTION MITIGATION AND ENHANCEMENT MEASURES

In accordance with the issues identified above, KPU proposes the following protection, mitigation, and enhancement (PM&E) measures:

Rare and Invasive Plant Species Management Plan - Spatial data generated during the rare and invasive plant species survey will provide a framework for KPU to develop a management plan for the management of rare plant species and invasive/noxious plant species when conducting maintenance activities in the Project area. KPU proposes to consult with the USFS, USFWS, and ADFG in development of the management plan.

Picnic Table Upgrades – The three picnic tables located at the Lower Silvis Dam recreation site are old. Given the Project area receives consistent recreation use, KPU proposes to replace the picnic tables provided at the Lower Silvis Dam recreation site with new picnic tables.

Historic Properties Management Plan – Information gathered from the Historic Structures Survey will be incorporated into an HPMP. The HPMP will outline any historic structures that are identified within the Project boundary and will outline consultation needs required for ongoing Project maintenance activities and Project construction activities.

7.2.3 STUDY REQUESTS

In the development of the PAD, KPU collected and summarized the reasonably available information regarding the Beaver Falls Project and its effects on the human and natural environment. Licensing participants may request additional studies or investigations as specified by 18 CFR§16.8 (b)(5). The interested resource agency, Indian tribe, or member of the public must provide the applicant with written comments:

- Identifying the determination of necessary studies to be performed or information to be provided by the applicant;
- Identifying the basis for its determination;
- Discussing its understanding of the resource issues and its goals objectives for these resources;
- Explaining why each study methodology recommended by it is more appropriate than any other available methodology alternatives, including those identified by the potential applicant;
- Documenting that the use of each study methodology recommended by it is a generally accepted practice;
- Explaining how the studies and information requested will be useful to the agency, Indian tribe, or member of the public in furthering its resource goals and objectives.

Study requests must be filed with the FERC and may be electronically filed at www.ferc.gov citing the FERC Docket No. P-1922. Study requests must be filed no later than 60 days of the Joint Agency and Public Meeting (anticipated to be October 2019). In addition, study requests should be sent to: Jennifer Holstrom, Ketchikan Public utilities, 2930 Tongass Avenue, Ketchikan, Alaska 99901 or email: jenniferh@ktn-ak.us.

8.0 RELEVANT COMPREHENSIVE MANAGEMENT PLANS

8.1 COMPREHENSIVE WATERWAY PLANS

Section 10(a)(2)(A) of the FPA, 16 U.S.C. section 803 (a)(2)(A), requires FERC to consider the extent to which a project is consistent with Federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. On April 27, 1988, the Commission issued Order No. 481-A, revising Order No. 481, issued October 26, 1987, establishing that the Commission will accord FPA section 10(a)(2)(A) comprehensive plan status to any Federal or state plan that: (1) is a comprehensive study of one of more of the beneficial uses of the waterway or waterways; (2) specifies the standards, the data, and the methodology used; and (3) is filed with the Secretary of the Commission.

The FERC currently lists 99 comprehensive plans for the State of Alaska (FERC 2018). The following 21 comprehensive plans pertain to the area within the Project vicinity:

- Alaska Administrative Code. 2012. 5 AAC § 39.222 Policy for the Management of Sustainable Salmon Fisheries. Juneau, Alaska.
- Alaska Administrative Code. 2003. 5 AAC § 75.222 Policy for the Management of Sustainable Wild Trout Fisheries. Juneau, Alaska.
- Alaska Department of Fish and Game. 2006. Management Plan for Invasive Northern Pike in Alaska. Anchorage, Alaska. 2006.
- Alaska Department of Fish and Game. 1998. Prince of Wales Island Area Plan. Anchorage, Alaska. October 1998.
- Alaska Department of Fish and Game. 2011. Alaska Anadromous Waters Catalog - Southeastern Region. Anchorage, Alaska. June 1, 2011.
- Alaska Department of Fish and Game. U.S. Fish and Wildlife Service. 2007. Black Oystercatcher (*Haematopus bachmani*) Conservation Action Plan. Anchorage, Alaska. April 2007.
- Alaska Department of Natural Resources. Alaska's Outdoor Legacy: Statewide Comprehensive Outdoor Recreation Plan (SCORP): 2009-2014. Anchorage, Alaska.
- Alaska Department of Natural Resources. 2000. Central/Southern Southeast Area Plan. Anchorage, Alaska. November 2000.
- U.S. Forest Service. 2016. Tongass National Forest Land and Resource Management Plan. Department of Agriculture, Ketchikan, Alaska. December 2016.
- National Marine Fisheries Service. 1991. Final Recovery Plan for the Humpback Whale. Silver Spring, Maryland. November 1991.

- National Marine Fisheries Service. 2007. Conservation Plan for the Eastern Pacific Stock of Northern Fur Seal (*Callorhinus ursinus*). National Marine Fisheries Service, Juneau, Alaska. December 2007.
- National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales. Seattle, Washington. January 2008.
- National Marine Fisheries Service. 2008. Recovery Plan for the Steller Sea Lion: Eastern and Western Distinct Population Segments (*Eumetopias jubatus*). National Marine Fisheries Service, Juneau, Alaska. March 2008.
- National Park Service. The Nationwide Rivers Inventory. Department of the Interior, Washington, D.C. 1993. U.S. Fish and Wildlife Service. n.d. Fisheries USA: the Recreational Fisheries Policy of the U.S. Fish and Wildlife Service. Washington, D.C.
- U.S. Fish and Wildlife Service, *et al.* 2008. Alaska Shorebird Conservation Plan. Version II. Anchorage, Alaska. November 2008.
- U.S. Fish and Wildlife Service. 2009. Alaska Seabird Conservation Plan. Anchorage, Alaska. 2009.
- U.S. Fish and Wildlife Service. 2005. Regional Seabird Conservation Plan. Pacific Region, Portland, Oregon. January 2005.
- U.S. Fish and Wildlife Service. 2002. Steller's Eider (*Polysticta stelleri*) Recovery Plan. Fairbanks, Alaska. September 2002.
- U.S. Fish and Wildlife Service. 1996. Spectacled Eider (*Somateria fischeri*) Recovery Plan. Anchorage, Alaska. August 1996.
- U.S. Fish and Wildlife Service. 1994. Conservation Plan for the Pacific Walrus in Alaska. Anchorage, Alaska. June 1994.
- U.S. Fish and Wildlife Service. 1994. Conservation Plan for the Sea Otter in Alaska. Anchorage, Alaska. June 1994.

8.2 RELEVANT RESOURCE MANAGEMENT PLANS

In addition to the comprehensive plans listed above, some agencies have developed resource management plans to help guide their actions regarding specific resources of jurisdiction. The resource management plans listed below may be relevant to the Project and may be useful in the relicensing proceeding for characterizing desired conditions.

- Alaska Department of Fish and Game. Black Bear Management Report. July 2007 – June 2010.
- Alaska Department of Fish and Game. Wolf Management Report and Plan, Game Management Unit 1A. Report Period 1 July 2010–30 June 2015, and Plan Period 1 July 2015–30 June 2020. Division of Wildlife Conservation. Juneau, Alaska. 2018.
- Alaska Department of Fish and Game. Alaska Wildlife Action Plan. 2015.

- Alaska Department of Fish and Game. 2018 Spring Troll Fishery Management Plan. Regional Information Report No. 1J18-07. 2018.
- Alaska Department of Natural Resources. Southeast State Forest Management Plan. Division of Forestry. February 2016.
- Ketchikan Gateway Borough. 2009. Ketchikan Gateway Borough Comprehensive Plan 2020. Ketchikan Gateway Borough Department of Planning & Community Development. April 1, 2009.
- U.S. Department of the Interior. Bureau of Land Management. East Alaska Resource Management Plan. 2010.
- U.S. Forest Service. 2011. Ketchikan-Misty Fiords Outfitter and Guide Management Plan. June 2011.
- U.S. Forest Service. 2016. Land and Resource Management Plan. Tongass National Forest. December 2016.

8.3 REFERENCES

Federal Energy Regulatory Commission (FERC). 2018. List of Comprehensive Plans. Available online: <https://www.ferc.gov/industries/hydropower/gen-info/licensing/complan.pdf>. Accessed February 22, 2019.

APPENDIX A

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Beaver Falls Distribution List

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APPENDIX B

INITIAL CONSULTATION

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Cc: ["Jennifer Holstrom"](#); [Finlay Anderson](#); [Jeff Deason](#); [Pratt, Jeremy](#); [Andrew Donato](#)
Subject: Beaver Falls Hydroelectric Project - Information Gathering for Relicensing
Date: Friday, March 15, 2019 10:07:00 AM
Attachments: [1852010 Beaver Falls PID 3-15-19.pdf](#)
[Beaver Falls PAD Stakeholder Questionnaire 3-15-2019.pdf](#)

Good Morning,

As Jennifer Holstorm earlier expressed via phone calls, voicemails, and/or emails, The City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities (KPU), with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the Federal Energy Regulatory Commission (FERC) relicensing process for the 7.1 megawatt Beaver Falls Hydroelectric Project (FERC No. 1922) (Project). The Project consists of two developments (Silvis and Beaver Falls) and is located on Beaver Falls Creek, approximately 6 miles northeast of the City of Ketchikan. The Beaver Falls Project additionally occupies federal lands within Tongass National Forest.

KPU is preparing a Notice of Intent (NOI) to relicense the Project and a Pre-Application Document (PAD) to be filed with the FERC no later than October 31, 2019. The PAD will provide FERC and stakeholders with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity. As such, KPU is providing this initial stakeholder distribution with the attached Preliminary Information Document (PID) to provide background information on the Beaver Falls Project and high level summaries of known resources. A Stakeholder Questionnaire is additionally attached and is provided to you as a means to identify additional sources of existing, relevant, and reasonable available information pertinent to the Project that is not currently in KPU's possession.

KPU will hold an initial stakeholder meeting in Ketchikan, AK to provide an overview of the Beaver Falls Project, review existing resources, and to identify any potential information gaps/resource issues before finalization of the PAD. KPU would like to schedule this initial stakeholder meeting for the second week in April. A Doodle Poll link is provided below with a list of possible meeting dates. If you could please access the link and identify your preferred dates for this meeting by **Friday March 22, 2019**, it would be much appreciated. We will then select the most preferred date to hold the initial stakeholder meeting and notify this group accordingly.

Doodle Poll Link: <https://doodle.com/poll/irp7s5uegnkvcdae>

In summary, if you could please review the PID, complete and return the Stakeholder Questionnaire, and complete the Doodle Poll, it would be much appreciated.

If you would like to be removed from this distribution list or have updated contact information please let me know.

Thank you in advance for your time,

Katie Sellers

Katie E. Sellers, M.S.

Regulatory Coordinator

Kleinschmidt

Office: 207-416-1218

www.KleinschmidtGroup.com

*Providing **practical** solutions for **complex** problems affecting energy, water, and the environment*

PRELIMINARY INFORMATION DOCUMENT

BEAVER FALLS HYDROELECTRIC PROJECT
FERC PROJECT NO. 1922

City of Ketchikan d/b/a Ketchikan Public Utilities
Ketchikan, Alaska

Prepared by:

Kleinschmidt

Portland, Oregon
www.KleinschmidtGroup.com

March 2019

PRELIMINARY INFORMATION DOCUMENT

BEAVER FALLS HYDROELECTRIC PROJECT
FERC PROJECT NO. 1922

City of Ketchikan d/b/a Ketchikan Public Utilities
Ketchikan, Alaska

Prepared by:



Portland, Oregon
www.KleinschmidtGroup.com

March 2019

PRELIMINARY INFORMATION DOCUMENT

BEAVER FALLS HYDROELECTRIC PROJECT FERC PROJECT NO. 1922

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PRELIMINARY INFORMATION DOCUMENT

BEAVER FALLS HYDROELECTRIC PROJECT FERC PROJECT NO. 1922

1.0 INTRODUCTION

The City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities (KPU) is beginning the Federal Energy Regulatory Commission (FERC) relicensing of the 7.1 megawatt (MW) Beaver Falls Hydroelectric Project (FERC No. 1922) (Project). The Project consists of two developments: Silvis and Beaver Falls. Located on Beaver Falls Creek, approximately 6 miles northeast of the City of Ketchikan, Beaver Falls Project occupies federal lands within Tongass National Forest.

All non-federal hydroelectric projects in the United States operate under licenses issued by FERC. FERC issued a license to KPU on November 7, 1994 that was amended April 27, 1999 and March 19, 2018 and expires on October 31, 2024 (Appendix B). For KPU to continue operating the Project, KPU must obtain a new operating license from FERC which requires a multi-year application process and filing a license application with FERC by October 31, 2022.

1.1 THE PRELIMINARY INFORMATION DOCUMENT

This Preliminary Information Document (PID) is a compilation of existing information on the Beaver Falls Project. While the PID is not a requirement of the relicensing process, KPU prepared this document to inform stakeholders on the current operation of the Project and prepare stakeholders for an Initial Stakeholder Meeting (discussed in Section 1.2). The PID serves as a precursor to the Preliminary Application Document (PAD), which is a requirement of the FERC relicensing process. The PAD will provide a more in-depth review of the Beaver Falls Project, its operations, a desktop review of existing environmental conditions, and identification of potential information gaps, issues, or concerns regarding natural resources.

KPU is distributing copies of the PID to federal agencies, state agencies, and non-governmental organizations (NGOs) that may be interested in the relicensing proceeding. Following distribution of the PID and hosting an Initial Stakeholder Meeting, KPU will prepare and

distribute the PAD in June 2019. A copy of the initial distribution list for this PID is included in Appendix A.

1.2 INITIAL STAKEHOLDER MEETING

Approximately 30 days after distributing the PID, KPU will host an Initial Stakeholder Meeting at KPU's office for all interested parties. The purpose of the meeting is to provide stakeholders with information about the Beaver Falls Project and its operations, identify existing environmental resource information that may be pertinent for development of the PAD, identify potential environmental resource information gaps, issues, or concerns regarding natural resources, and provide an overview of the FERC relicensing process.

1.3 AGENTS FOR KETCHIKAN PUBLIC UTILITIES

The following persons are authorized to act as agents for KPU's relicensing process:

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2.0 BEAVER FALLS PROJECT LOCATION, FACILITIES, AND OPERATIONS

2.1 PROJECT OVERVIEW

The 7.1 MW Beaver Falls Project is located on Beaver Falls Creek, approximately 6 miles northeast of the City of Ketchikan, Alaska (Figure 2-1). The Project occupies federal lands within Tongass National Forest and consists of two developments: Silvis and Beaver Falls. The Project provides power throughout the Ketchikan Gateway Borough and is considered KPU's most important generation asset, as it provides approximately 30 percent of KPU's total electric generation.

2.2 SILVIS DEVELOPMENT

The Silvis Development includes the naturally occurring Upper Silvis Lake, Upper Silvis Dam, concrete spillway, power conduit consisting of a tunnel and penstock, a single-unit powerhouse, and a transmission line (Figure 2-2).

2.2.1 UPPER SILVIS DAM AND SPILLWAY

Upper Silvis Dam is a concrete-faced rock-filled structure constructed across the natural outlet of Upper Silvis Lake. Upper Silvis Dam has a maximum height of approximately 60 feet with a crest elevation of 1,164 feet above mean sea level (msl). The dam crest has an approximate width of 22 feet and a crest length of approximately 135 feet.

The Upper Silvis Spillway is an ungated control weir constructed in a natural notch approximately 450 feet southeast of the dam, with an 800-foot-long excavated rock spillway channel from the weir to Lower Silvis Lake. The weir is a concrete-faced rock-filled structure with a crest length of 54 feet and a height of 16 feet (crest at 1,154 feet msl). The spillway channel is approximately 20-feet-wide with a maximum depth of 8 feet. When the lake level exceeds elevation 1,154-feet msl, water spills over the concrete control weir and is conveyed to Lower Silvis Lake through the spillway channel.

2.2.2 UPPER SILVIS LAKE

The Upper Silvis Dam impounds Upper Silvis Lake. Upper Silvis Lake is operated at the normal maximum water surface elevation of 1,154 feet msl. Its gross storage capacity at maximum surface elevation is estimated to be 38,000-acre-feet, and its surface area is 300 acres. The minimum water surface elevation is 1,055-feet msl. Usable storage capacity between the normal maximum and minimum water surface elevations is 22,000-acre-feet.

2.2.3 UPPER SILVIS POWER CONDUIT

Water from Upper Silvis Lake is conveyed to the Silvis Powerhouse via a power tunnel (Tunnel No. 1) and penstock system. At a point approximately 200 feet downstream from the tunnel intake, a riser shaft was excavated to 1,045 feet msl, and a 3-foot by 4-foot manually operated Chapman sluice gate was installed across the tunnel to control outflow from Upper Silvis Lake to Silvis Powerhouse. This sluice gate is used for emergency closure and is capable of withstanding 100 feet of static head. The intake tunnel invert is 96-feet-below the normal maximum lake

surface of 1,154 feet msl. The tunnel extends approximately 980 feet to the exit portal at elevation 1,043-feet msl, where it connects to a 342-foot-long, 36-inch-diameter penstock that conveys water to the generating unit in the Silvis Powerhouse. A short section of pipe with a valve additionally extends horizontally from the tunnel outlet. This pipe is used to bypass the penstock and powerhouse when needed and discharges water directly to the Upper Silvis spillway channel.

2.2.4 SILVIS POWERHOUSE

The Silvis Powerhouse is located at the southwest end of Lower Silvis Lake, at elevation 833 feet msl, near the natural outlet of Upper Silvis Lake. The powerhouse is a reinforced concrete structure, approximately 30-feet by 40-feet by 20-feet high, and houses a 2.1 MW Francis-type, horizontal shaft turbine-generator unit. The unit is rated at 3,000 horsepower (hp) under 288-feet average net head. The generator is rated at 2,500 kilovolt-ampere (kVA), 0.85 power factor, and 4.16 kilovolts (kV). Remote monitoring and controls are enabled at the powerhouse. A 14-inch butterfly valve located in the powerhouse moves flow from the penstock and discharges it into Lower Silvis Lake, ensuring a supply of water to Lower Silvis Lake during plant shut downs. Water from the powerhouse is discharged into Lower Silvis Lake via a trapezoidal-shaped rip rap tailrace channel approximately 150-feet-long.

2.2.5 SILVIS TRANSMISSION LINE

The Silvis Transmission Line consists of a 2,900-foot-long, 5 kV, 250 MCM submarine power cable through Lower Silvis Lake and a 7,000-foot-long, 34.5 kV aerial transmission line. The submarine cable transmits the generation to a 2,500 kVA, 34.5-4.16 kV transformer located near Lower Silvis Dam. The aerial transmission line transmits the generation from the transformer to the Beaver Falls Switchyard.

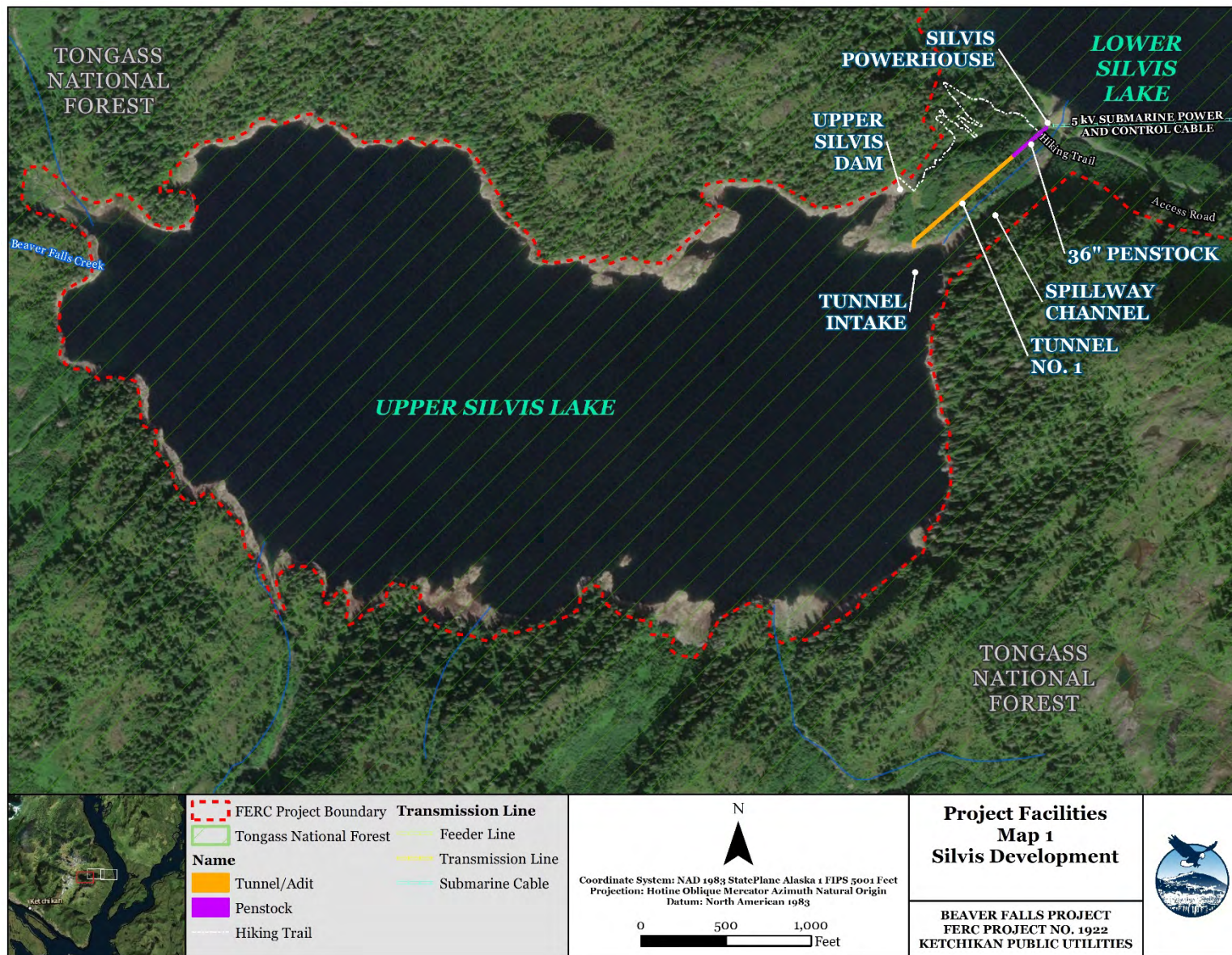


FIGURE 2-2 SILVIS DEVELOPMENT COMPONENTS

2.3 BEAVER FALLS DEVELOPMENT

The Beaver Falls Development includes the natural occurring Lower Silvis Lake, Lower Silvis Dam, concrete spillway, Beaver Falls Creek Diversion Dam, two power conduits, a powerhouse containing three active and one decommissioned generating units, a switchyard, and substation (Figures 2-3 and 2-4).

2.3.1 LOWER SILVIS DAM AND SPILLWAY

The Lower Silvis Dam is a concrete-faced rock-filled structure constructed across the natural outlet of Lower Silvis Lake. Lower Silvis Dam has a maximum height of approximately 32 feet with a crest elevation of 835 feet msl. The dam crest has a width of 10 feet and a crest length of approximately 140 feet.

The Lower Silvis Spillway consists of an ungated control weir and an unlined rock discharge channel on the left abutment of Lower Silvis Dam. The weir is a reinforced concrete structure approximately 3-feet-high by 140-feet-long, with a crest width of 4 feet. The spillway discharge channel is approximately 50-feet-wide and returns flow to Beaver Falls Creek below the dam.

2.3.2 LOWER SILVIS LAKE

The Lower Silvis Dam impounds Lower Silvis Lake which is operated at the normal maximum water surface elevation of 827 feet msl. The gross storage capacity at the maximum surface elevation is estimated to be 8,052-acre-feet, and the surface area is 67.5 acres. The minimum water surface elevation is 802 feet msl. Usable storage capacity between the normal maximum and minimum water surface elevations is 1,600-acre-feet.

2.3.3 LOWER SILVIS POWER CONDUIT

Water from Lower Silvis Lake is conveyed to the Beaver Falls Powerhouse via a power tunnel (Tunnel No. 2 and No. 3) and penstock system. The intake structure is constructed with a galvanized-steel trashrack containing stop-log grooves, deploying logs for emergency closure and a manual or motor-operated locally-controlled sluice gate. The sluice gate controls water entering Tunnel No. 2, which is 3,800-feet-long. Connected to the exit of Tunnel No. 2 is an above-ground 42-inch-diameter by 3,610-foot-long steel penstock that continues through Tunnel No. 3 and conveys water to Beaver Falls Powerhouse Unit Nos. 3 and 4.

Downstream from the intake structure on Lower Silvis Lake, an adit taps Tunnel No. 2. The adit is a 225-foot-long by 20-inch diameter pipe located in a side tunnel. The adit has a 20-inch butterfly valve that discharges water into Beaver Falls Creek, approximately 500 feet upstream of the Beaver Falls Creek Diversion Dam and Intake. The adit's butterfly valve can be controlled locally or remotely.

2.3.4 BEAVER FALLS CREEK DIVERSION DAM AND POWER CONDUIT

The Beaver Falls Creek Diversion Dam is located on Beaver Falls Creek approximately two-thirds of a mile downstream of Lower Silvis Lake. The dam is a mass concrete overflow structure approximately 3-feet-high by 40-feet-long that also serves as a spillway.

Coarse timber trashracks are placed at the creek's edge across a short open intake channel with a steel settling box and a concrete shelter house constructed at its end. The steel box supports the main gate for the penstock as well as fine steel trashracks. The main gate is manually operated. A 4,170-foot-long penstock conveys water from the Beaver Falls Diversion Dam intake to Unit No. 1 in Beaver Falls Powerhouse. The upstream half of the penstock is 30-inches in diameter, decreasing to a 28-inch-diameter. Near the powerhouse, the 28-inch penstock transitions to a manifold with four 18-inch branches. Two of these branches supply Unit No. 1 and two branches supply Unit No. 2, which has been decommissioned.

2.3.5 BEAVER FALLS POWERHOUSE

The Beaver Falls Powerhouse is located along the shoreline of George Inlet. The powerhouse is a reinforced concrete structure, approximately 30-feet by 147-feet by 25-feet high, and contains four horizontal shaft Pelton generating units, one of which (Unit No. 2) has been decommissioned. Unit No. 1 turbine is an impulse-type with a rated capacity of 1 MW and 1,300 hp under an average net head of 600 feet. The turbine is equipped with a hydraulic governor. The direct-connected generator is rated at 1,250 kVA, 0.80 power factor, 1,000 kW, and 2.4 kVs. Units No. 3 and 4 turbines are impulse units with rated capacities of 2 MW and 3,600 hp each under an average net head of 760 feet. The direct-connected generators are rated at 2,500 kVA, 0.80 power factor, 1,000 kW, and 2.4 kVs.

There are no transmission lines associated with the Beaver Falls Powerhouse. The Project is interconnected to KPU's transmission system at the adjacent Beaver Falls Substation, which includes one 10/12.5 MVA 2.4 kV to 34.5 kV transformer (lower substation/switchyard), and two 34.5 kV oil circuit breakers (upper substation/switchyard).

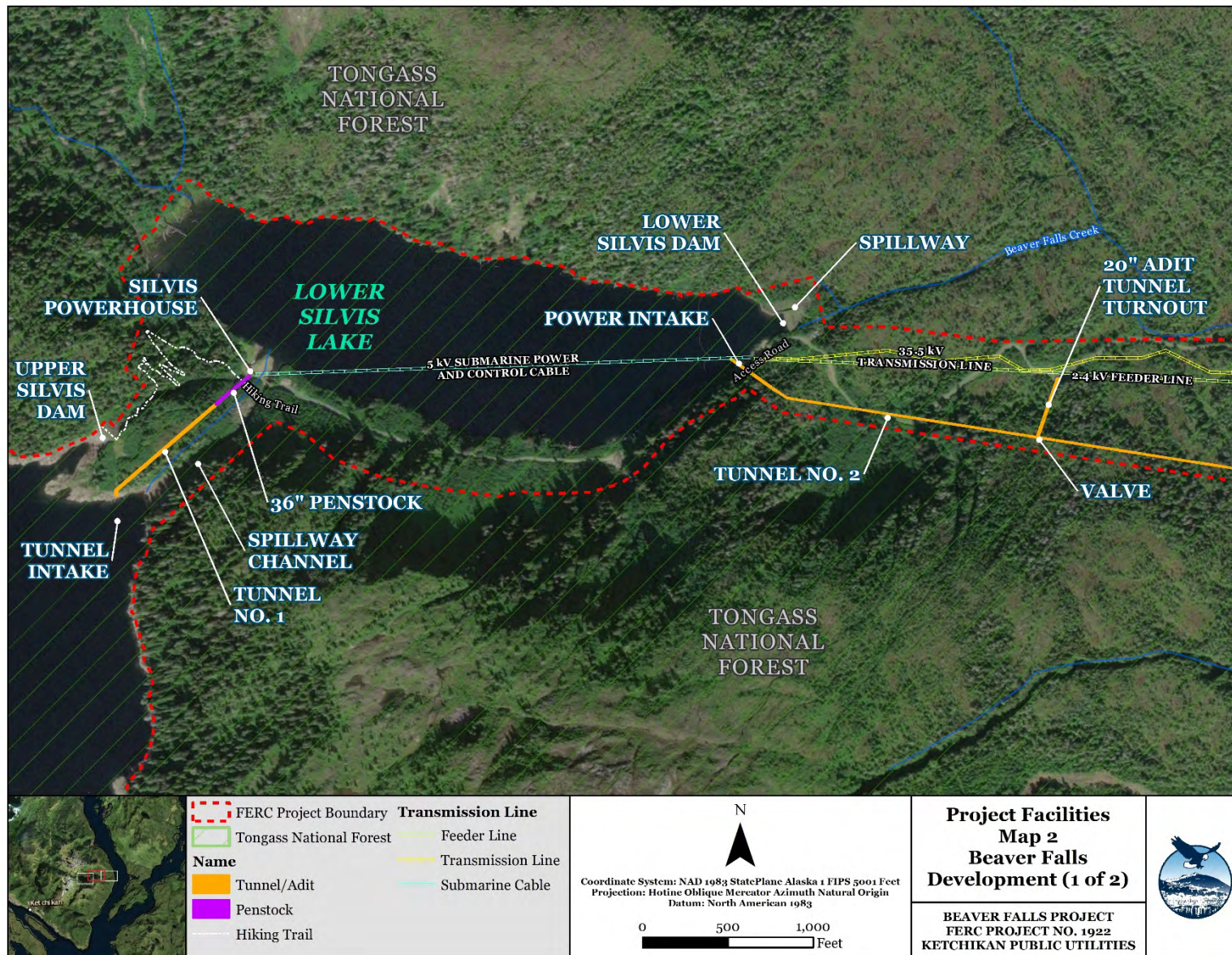


FIGURE 2-3 BEAVER FALLS DEVELOPMENT COMPONENTS MAP 1 OF 2

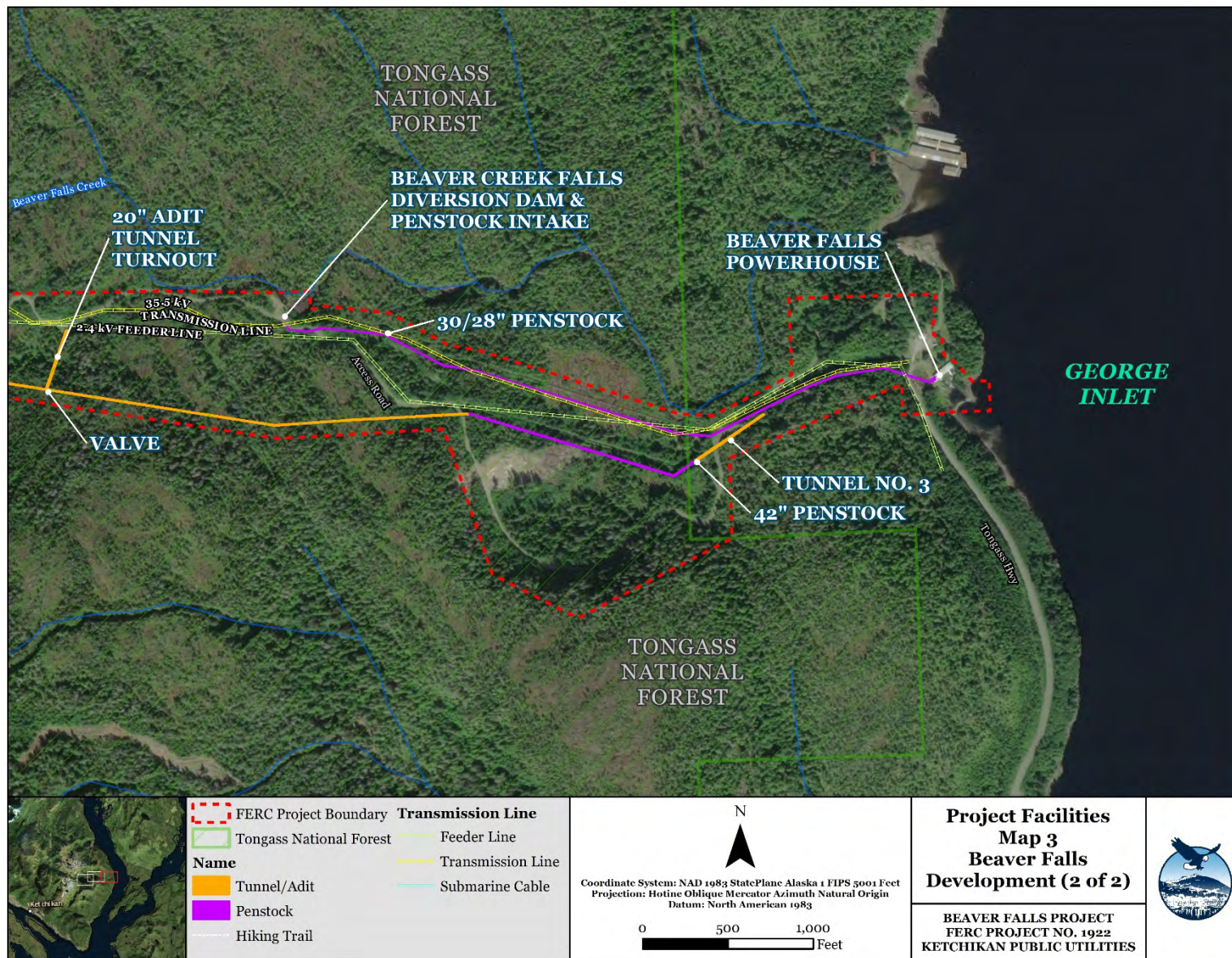


FIGURE 2-4 BEAVER FALLS DEVELOPMENT COMPONENTS MAP 2 OF 2

2.3.6 OPERATIONS

Upper and Lower Silvis Lake reservoirs are operated for hydroelectric generation only. Upper Silvis Lake provides the primary storage for the entire Beaver Falls Project and is managed between elevation 1,154 feet msl and 1,055 feet msl to maintain Lower Silvis Lake's elevation. Lower Lake Silvis is kept near a maximum elevation 827 feet msl to maximize head while avoiding spill. There are no fixed rule curves for Project operations.

Except during spring runoff, most water is used for generation. Minimum flows are not released at the Project, and Beaver Falls Creek generally remains watered throughout the year.

KPU's Supervisory Control and Data Acquisition (SCADA) system enables remote monitoring and operation from the control center in Ketchikan which is staffed 24 hours a day, 7 days a week. KPU monitors the following Project data:

- Reservoir elevations
- Flow from Upper Silvis Lake to the Silvis Powerhouse Unit No. 1 (penstock flow meter)
- Flow from Lower Silvis Lake to Beaver Falls Powerhouse Units No. 3 and 4 (penstock flow meter)

2.4 PROPOSED CHANGES TO THE PROJECT

KPU does not currently propose any operational or infrastructure changes to the Project.

3.0 OVERVIEW OF EXISTING ENVIRONMENTAL RESOURCES

3.1 GEOGRAPHIC OVERVIEW

The Beaver Falls Project is located along the southern coast of Revillagigedo Island, approximately 6 miles northeast of the City of Ketchikan. Revillagigedo Island lies at the southeast extremity of the Alexander Archipelago where the local climate is tempered by the warm Japan Current that sweeps along the Alexander Archipelago (KPU 1992). The City of Ketchikan receives an average of 141 inches of precipitation a year (U.S. Climate Data 2019). June and July are the driest months and October and November are the wettest months. Temperatures in the region are moderate, ranging from the average minimum of 30 degrees Fahrenheit (F) in January to the average maximum of 64 degrees F in July and August (U.S. Climate Data 2019).

3.1.1 GEOLOGY

The Beaver Falls Project is situated within the Coastal Foothills physiographic province (Campbell 1991). The Coastal Foothills consist of high mountains, 3 to 30 miles across, separated by level valley bottoms. Numerous lakes and short streams occur in the region. The lower parts of most valleys are submerged, forming inlets and harbors (Campbell 1991).

This region of Revillagigedo Island is underlined by a belt of early Cretaceous to late Jurassic slate, graywacke, conglomerate, and limestone (KPU 1992). Granitic rocks of unknown age are also present on this portion of the island. Debris avalanches¹ are common in southeast Alaska, often developing in shallow, unconsolidated deposits steeper than 30 degrees. A debris avalanche destroyed the original Silvis Powerhouse in 1969 (KPU 1992). The powerhouse was rebuilt in 1975.

3.1.2 WATER RESOURCES

The tributary to Upper and Lower Silvis Lakes is mountainous, reaching elevations in excess of 3,000 feet msl (KPU 1992). Upper Silvis Lake, located 1.5 miles upstream from the mouth of Beaver Falls Creek (tidewater), drains an area of 3.41 square miles. Lower Silvis Lake is located

¹ Debris avalanche is a mass of rock fragments and soil that has moved rapidly down a steep mountain slope or hillside and because of its high water content has behaved like an avalanche of snow. <https://www.merriam-webster.com/dictionary/debris-avalanche>. Accessed February 11, 2019.

1.2 miles upstream from the tidewater and has a total drainage area of 1.15 square miles (KPU 1992). During the previous 1992 relicensing effort, water quality at the Project was classified as excellent (State Water Classification 1A) (KPU 1992). Overall aquatic habitat quality in Tongass National Forest is considered good to excellent (USDA 2016).

3.1.3 FISH AND WILDLIFE RESOURCES

The falls at tidewater on Beaver Falls Creek have precluded the establishment of any natural run of anadromous salmonids in the system (KPU 1992); however, the stream is presently classified as anadromous by the Alaska Department of Fish & Game (ADFG) because chum and pink salmon are present at the mouth of the river, as described in the anadromous waters catalogue (AWC²). Both Upper and Lower Silvis Lakes were stocked with rainbow and cutthroat trout in the 1960s by ADFG. These populations are now naturally reproducing in both lakes (KPU 1992).

Both Sitka black-tail deer (*Odocoileus hemionus sitkensis*) and black bear (*Ursus americanus*) may be found around the Project (KPU 1992). It is doubtful that deer winter in the project area because of steep terrain and high snowfall. Waterfowl, seabirds, hawks, toads, salamanders, wolves, and mountain goats (*Oreamnos americanus*) are also known to occur in the project area. Hunting for deer and mountain goats occurs in the Project vicinity (permits required for mountain goat hunting).

3.1.4 RARE, THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES

The U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Consultation (IPaC) Report (February 1, 2019) identifies no federally listed threatened, endangered, or candidate species within the project area (Appendix C).

The 2016 Tongass National Forest Plan identifies the western distinct population segment (DPS) of the Steller sea lion (*Eumetopias jubatus*) (federal endangered species)³, as well as the Mexico DPS of the Humpback Whale (*Megaptera novaeangliae*) (federal threatened and state endangered species), and Northern Goshawk (*Accipiter gentilis*) (Alaska Region Sensitive Species) as species occurring within the limits of Tongass National Forest (ADFG No Date;

² AWC code: 101-45-10120

³ On November 4, 2013 the National Marine Fisheries Service issued a final rule (78FR 66140) to remove the eastern distinct population segment (DPS) of Steller Sea Lion from the List of Endangered and Threatened Wildlife. Although the Beaver Falls Project resides within territory of the delisted eastern DPS, the western DPS remains endangered and may potentially occur within waters surrounding Tongass National Forest (USDA 2016).

USDA 2016). It is not expected that marine mammals would be pertinent to the relicensing of the Project. The Tongass National Forest Plan additionally notes that there are currently no threatened or endangered fish species or plant species identified within the territorial bounds of Tongass National Forest (USDA 2016).

Bald Eagles (*Haliaeetus leucocephalus*), protected by the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, and Lacey Act, are numerous in the project area (USFWS 2018).

3.1.5 BOTANICAL RESOURCES

Vegetation is dominated by coastal old-growth rainforest (KPU 1992). Western hemlock (*Tsuga heterophylla*) and Sitka spruce (*Picea sitchensis*) are the major tree species, with some western red cedar (*Thuja plicata*) and Alaska yellow cedar (*Chamaecyparis nootkatensis*)⁴. Red alder (*Alnus rubra*) and Sitka alder (*Alnus viridis*) occur on disturbed sites and along water courses (KPU 1992). The forest understory is characterized by salmonberry brush (*Rubus spectabilis*) in disturbed areas and in forest openings. Blueberry (*Vaccinium alaskaense*), rusty menziesia (*Menziesia ferruginea*), marsh marigold (*Caltha palustris*), skunk cabbage (*Lysichiton americanum*), bunchberry (*Cornus canadensis*) and Devil's club (*Echinopanax horridum*) dominate the understory of heavily forested areas of the Project (KPU 1992). The USFWS National Wetlands Inventory maps identify freshwater forested/shrub wetland, freshwater pond, and lake habitats within the project area (USFWS 2019).

3.1.6 RECREATION, AESTHETIC, AND LAND USE RESOURCES

Surrounded almost entirely by the Tongass National Forest, the Beaver Falls Project is traversed by a primitive access road that doubles as a recreation trail (Silvis Lakes Trail). The access road/trail starts adjacent to the Beaver Falls Powerhouse and runs to the upper end (western end) of Lower Silvis Lake, terminating at Silvis Powerhouse. A parking area, informational kiosk, and hiker sign-in are located at the base of the access road, adjacent to Beaver Falls Powerhouse. There is no public vehicle access past the powerhouse. KPU seasonally maintains three picnic tables, trash receptacles, fire rings, and a toilet at the eastern end of Lower Silvis Lake. The access road is owned and maintained by KPU. KPU funds the U.S. Forest Service (USFS) for annual foot trail maintenance activities between Lower Silvis and Upper Silvis lakes.

⁴ The USFWS was petitioned to put Alaska yellow cedar on the endangered species list in 2014. A decision regarding species elevation to the Endangered Species List has not yet been made (Alaska Public Media 2017).

Tongass National Forest offers varied recreation opportunities, ranging from primitive to more developed settings (USDA 2016). The Silvis Lakes access road/trail joins with the USFS Deer Mountain-John Mountain trail system that takes hikers into the City of Ketchikan (approximate 12-mile trip one-way). The KPU access road and trail are used for day hiking, backpacking, hunting, and general sightseeing. The trail network including the Beaver Falls Project is considered one of Revillagigedo Island's more popular recreation areas. The outstanding scenery of the Tongass National Forest is a major attraction for resident and non-resident recreationist (USDA 2016).

Parts of the Tongass National Forest are zoned under Land Use Designations (LUDs) specifying a range of uses. Defined areas of the Forest are allocated to various LUDs as part of the Forest planning process. There are 18 LUDs on the Tongass National Forest. Within the existing Beaver Falls Project FERC boundary, there are 478.4 acres of land within the Tongass National Forest System (NFS). The LUD designation for lands within the FERC boundary is Semi-Remote Recreation. Activities on these lands is required to be consistent with the NFS Plan Standards and Guidelines, and the management prescriptions in the Semi-Remote Recreation LUD for all resources (USDA 2016).

3.1.7 CULTURAL AND HISTORIC RESOURCES

Archaeological surveys were conducted within the Beaver Falls project area in conjunction with the previous relicensing process. Historically, the area resides within the domain of the Tlingit Indians (Campbell 1991). Until the early-to-mid-nineteenth century, records show that the area had been occupied by the Sanyqoan, or Cape Fox Tlingit. During this period, the area was turned over to the Tantaqoan or Tongass Tlingit people, which were relative newcomers to Revillagigedo Island (Campbell 1991). In 1914, a cannery was established on the north bank of Beaver Falls Creek by the George Inlet Packing Company. The company established a small hydroelectric dam on Beaver Falls Creek located below Lower Silvis Lake (Campbell 1991). The cannery applied for and gained a FERC license for hydroelectric operations in 1922 (FERC No. 206).

The Beaver Falls Project was initially developed by the City of Ketchikan in 1946 (KPU 1991). The Project originally consisted of a timber crib dam at Upper Silvis Lake, the Beaver Falls Creek Diversion Dam, a 28-inch-diameter penstock, and Beaver Falls Powerhouse containing

Unit Nos. 1 and 2. The second phase of development occurred in 1954 and included construction of the Lower Silvis Dam, water conduits, and installation of Beaver Falls Powerhouse Unit Nos. 3 and 4. A third phase of development occurred from 1967 to 1968, when the Upper Silvis Dam was replaced with a concrete-faced rock-fill structure. The Silvis Powerhouse and corresponding power conduits from Upper Silvis Lake were also built during this timeframe. After 1 year of operation, the Silvis Powerhouse was destroyed in 1969 by a debris avalanche and was later rebuilt in 1975 to 1976.

The project's hydroelectric facilities date after World War II and have been modified extensively. During the previous 1992 relicensing effort, it was determined that there were no archaeological or historic sites eligible for inclusion in the National Register of Historic Places in the project area.

3.1.8 TRIBAL RESOURCES

Tribes or tribal corporations having potential interest in the Beaver Falls Project relicensing include:

- Metlakatla Indian Community
- Cape Fox Corporation
- SEALASKA Corporation
- Ketchikan Indian Corporation

The Metlakatla Indian Community (MIC) is located on neighboring Annette Islands which is the only Indian reservation in the State of Alaska (Metlakatla Indian Community 2017). Cape Fox Corporation additionally owns lands adjacent to the Beaver Falls Powerhouse. The old George Inlet Packing Company building is located on Cape Fox lands adjacent to Beaver Falls Powerhouse.

3.1.9 SOCIOECONOMICS

The 2017 population estimate for the City of Ketchikan was 8,272 and the population's median age was estimated to be 38 years (U.S. Census Bureau 2017). The Ketchikan area economy is reliant on travel and tourism, fishing, and government employment (Headwaters Economics 2006). As noted within the 2016 Tongass National Forest Land and Resource Management Plan, Tongass National Forest provides the backdrop as well as the land base for many tourism

activities (USDA 2016). The size and extent of the Tongass National Forest has a profound influence on the amount and nature of opportunities for the tourism industry.

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APPENDIX A

DISTRIBUTION LIST

Beaver Falls Hydroelectric Project (P-1922)
Distribution List
March 2019

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APPENDIX B

FERC LICENSE AND AMENDMENTS

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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Ketchikan Public Utilities

Project No. 1922-008
Alaska

ORDER ISSUING NEW LICENSE
(Major Project)

NOV 07 1994

Ketchikan Public Utilities (KPU) filed a license application under Part I of the Federal Power Act (FPA) for the continued operation and maintenance of the 7.1-megawatt (MW) Beaver Falls Project located on the Beaver Falls Creek in the First Judicial District of Alaska. The project would produce about 46.3 gigawatthours (GWh) of electricity annually. About 80 percent of the project occupies lands of the United States within the Tongass National Forest.

Notice of the application has been published. No motions to intervene were filed. No agency objected to issuance of this license. Comments received from interested agencies and individuals have been fully considered in determining whether or under what circumstances to issue this license.

The Commission's and the U.S. Forest Service's staff (herein to be referred to as staff) issued a draft environmental assessment (EA) for this project on March 28, 1994. The staff analyzed and considered all the comments filed pursuant to the draft EA and issued a final EA on June 27, 1994, which is attached to and made part of this license order. The Commission's staff also prepared a Safety and Design Assessment (S&DA), which is available in the Commission's public file associated with this project.

PROJECT DESCRIPTION

The existing project consists of two separate but interrelated developments:

(A) The Silvis Development, consisting of the 60 foot-high Upper Silvis dam, an 800-foot-long concrete apron spillway channel from Upper Silvis spillway to Lower Silvis Lake, Upper Silvis Lake, Tunnel No. 1, a 375-foot-long steel penstock, the Silvis powerhouse with an installed capacity of 2.1 MW, a channel tailrace about 150 feet long discharging into Lower Silvis Lake, a 2,900-foot-long submarine transmission cable, a 7,100-foot-long aerial transmission line, and other appurtenances.

9411140222

FERC-DOCKETED
NOV - 7 1994

(b) The Beaver Falls Development, consisting of a 32-foot-high dam, a 3-foot-high spillway, a 3-foot-high dam with 6-inch-high flashboards, Lower Silvis Lake, an intake structure, Tunnel No. 2, an above-ground steel penstock continuing through Tunnel No. 3, a 225-foot-long wood stave pipe from Tunnel No. 2 discharging into Beaver Falls Creek just upstream of the diversion dam, a 4,170-foot-long steel penstock from the diversion dam feeding unit 1 (1 MW) at the Beaver Falls powerhouse, the Beaver Falls powerhouse with a total installed capacity of 5 MW, and other appurtenances.

A detailed project description is contained in ordering paragraph B(2).

KPU's PLANS AND CAPABILITIES

KPU's Record as a Licensee

In accordance with Sections 10 and 15 of the FPA, the staff evaluated KPU's record as a licensee for these areas: (1) conservation efforts; (2) compliance history and ability to comply with the new license; (3) safe management, operation, and maintenance of the project; (4) ability to provide efficient and reliable electric service; (5) need for power; (6) transmission line improvements; and (7) project modifications. I accept the staff's findings in each of these areas.

Here are their findings:

1. Section 10(a)(2)(C): Conservation Efforts

The state of Alaska has no regulatory body with specific authority over energy conservation, nor has it promulgated any conservation policies, programs, or plans that would affect KPU.

KPU is a small isolated electric utility and states that as an alternative to new generation resources, it can investigate the possibility of implementing conservation programs to reduce electric consumption of its customers.

KPU cooperates with the Alaska Public Utilities Commission (APUC) by providing to its customers literature and other conservation information supplied by APUC through means of a bill-stuffing.

Therefore, KPU is making a good faith effort to conserve electricity.

2. Sections 15(a)(3)(A) and 15(a)(2)(A): Compliance History and Ability to Comply with the New License

The Commission's staff reviewed KPU's compliance with the terms and conditions of the existing license and found that KPU's overall record of making timely filings and compliance with its license is satisfactory.

Based on past performance, KPU has the ability to comply with terms of the new license.

3. Section 15(a)(2)(B): Safe Management, Operation, and Maintenance of the Project

KPU has installed public warning signs throughout the project. The lake level elevations within the project are monitored by pressure sensitive transducers located in each of the power tunnel intake structures. The structural movements of the dams are monitored at the crests and upstream faces.

There have been no accidents or deaths within the project boundaries with the exception of three lost-time accidents involving employees. One employee received second and third degree electrical burns. One employee slipped on a patch of ice and broke his ankle. Another employee suffered minor injuries caused by a discharge from the water adit valve. These incidents occurred in 1964, 1966, and 1980, respectively.

Since KPU was not at fault when the incidents occurred, the staff finds the project safe for continued use and operation. KPU's relicensing proposal wouldn't adversely affect the project's operation and safety.

Therefore, the project is safe for continued use and operation.

4. Section 15(a)(2)(C): Ability to Provide Efficient and Reliable Electric Service

The Commission's staff examined KPU's record of lost generation due to unscheduled outages and found that the outages have been minimal and lost generation was not significant compared to the total annual generation for this project.

Therefore, KPU is operating in an efficient and reliable manner.

5. Section 15(a)(2)(D): Need for Power

The staff has considered KPU's short- and long-term need for the power, as well as the cost of alternative power if KPU doesn't get a new license for the project.

The staff concludes that: (1) KPU has a need for power in both the short and long term, (2) the project provides a substantial part of KPU's generation needs, and (3) replacing the project's average annual energy production of 46.3 GWh would cost KPU about \$5.8 million annually, or about 121 mills/kilowatt-hour.

KPU uses the entire project output to meet customer demands. The project is KPU's least-cost generation resource and, because of its location in the system, it greatly enhances transmission service reliability.

To meet its other power needs, KPU purchases the power produced at the Alaska Energy Authority's Swan Lake Project. KPU's forecast indicates that, by 1995, demand growth will absorb the entire Swan Lake resource and KPU could become energy deficient at that time.

The power from the project would be useful in continuing to meet a large portion of KPU's short- and long-term projected power need. The project displaces fossil-fueled electric power generation, and thereby, conserves nonrenewable fossil fuels and reduces the emission of noxious byproducts caused by the combustion of fossil fuels.

Therefore, the Beaver Falls Project provides a necessary source of power for KPU.

6. Section 15(a)(2)(E): Transmission Line Improvements

KPU proposes no changes to the existing project transmission system.

The existing transmission system is sufficient, and no changes to the service affected by the project operation would be necessary whether the Commission issues a license for the project or not.

7. Section 15(a)(2)(F): Project Modifications

KPU is not proposing any major modifications to the project.

The Commission's staff looked at the potential for installing more capacity at the site and determined that it is not feasible at this time. Therefore, no other project modifications are necessary.

WATER QUALITY CERTIFICATION

On October 22, 1992, KPU applied for water quality certification for the project to the Alaska Department of

Environmental Conservation (ADEC), as required by Section 401 of the Clean Water Act. 1/ On October 22, 1992, ADEC received KPU's request for certification. Since ADEC didn't act on the request within 1 year from the receipt date, the water quality certificate is deemed waived according to Section 4.38(f)(7)(ii) of the Commission's regulations.

COASTAL ZONE MANAGEMENT PROGRAM

Under Section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), 16 U.S.C. § 1456(3)(A), the Commission cannot issue a license for a project within or affecting a state's coastal zone, unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program (which certification is included in the license application and, at the same time, is filed with the state), or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification.

However, the Coastal Zone Management Act 2/ does not appear to give the state authority to revisit its concurrence once a license has been issued. Furthermore, Section 307(e) 3/ states that nothing in the CZMA shall be construed to diminish federal jurisdiction or as superseding, modifying, or repealing existing laws applicable to the various federal agencies. Under the FPA, the Commission determines whether proposed changes constitute proposed amendments to the license, and therefore, whether a new certification and concurrence is necessary.

Because the project may affect coastal resources, the Alaska Division of Governmental Coordination (DGC) must review the proposed project for consistency with the Alaska Coastal Management Program (ACMP). By letter dated July 15, 1993, DGC concurred that the project is consistent with the ACMP. DGC included the following condition with the concurrence:

If any future changes to the approved project are proposed during operation, KPU must contact the DGC to determine if further review and approval of the revised project is necessary.

This condition would operate to give the state the opportunity to revisit the concurrence regardless of whether the

1/ 33 U.S.C. §1341.

2/ 16 U.S.C. 1451 et seq.

3/ 16 U.S.C. § 1456(e).

proposed changes relate to the ACMP and would give the state authority beyond that provided for in the CZMA. Therefore, this condition will not be included in the license. If changes to the project are proposed, the Commission will determine whether license amendments require new certification of consistency with the ACMP. In the event that DGC disagrees with the Commission's decision on re-certification and believes the proposed changes are not consistent with the ACMP, the controversy shall be resolved in accordance with the procedure specified in Section 930.66 of the CZMA, as amended.

Further, DGC recommended that the Commission should continue to assure public access in the lake areas, and concurred that the powerline design complies with guidelines by the Raptor Research Foundation, Inc. (Olendorff et al. 1981) to prevent potential injury of birds flying in the nearby area. Article 106 requires measures that will enhance public access to the lake areas.

RECOMMENDATIONS OF FISH AND WILDLIFE AGENCIES

Section 10(j)(1) of the FPA requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act, for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife. No federal or state fish and wildlife agency recommendations were filed for the project in response to our notice that the application was ready for environmental analysis.

SECTION 4(e) FINDINGS AND CONDITIONS

Section 4(e) of the FPA, requires that Commission licenses for projects located within United States reservations must include all conditions that the Secretary of the department under whose supervision the reservation falls shall deem necessary for the adequate protection and utilization of such reservation. A portion of the Beaver Falls Project is located in the Tongass National Forest, which is under the Forest Service supervision. By letter dated July 8, 1994, the Forest Service submitted its comments on the proposed project and its conditions for inclusion in any license. By letter dated October 31, 1994, it revised its

conditions. 4/ The Forest Service's conditions are included in this license as Articles 101 through 110.

COMPREHENSIVE PLANS

Section 10(a)(2)(A) of the FPA, requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, or conserving waterways affected by the project. Federal and state agencies have filed 15 plans that address various resources in Alaska. Three plans are relevant to this project. 5/ No conflicts were found.

COMPREHENSIVE DEVELOPMENT

Sections 4(e) and 10(a)(1) of the FPA, 16 U.S.C. §§ 797(e) and 803(a)(1) require the Commission, in acting on applications for license, to give equal consideration to the power and

4/ In summary, the Forest Service requires the licensee to:

1. Reserve National Forest System lands management to the Forest Service, obtain Forest Service's written approval for all final project design plans and any project changes and consult with the Forest Service annually about the project (conditions 1, 2, 3, 4);
2. Prepare a cultural resources management plan and a schedule to evaluate the significance of any archeological or historic sites discovered (condition 5);
3. Implement the Recreation Plan filed by KPU, as revised (condition 6); and
4. Ensure proper maintenance of the project premises, remove hazards on the site, ensure the Government use of roads, and indemnify the Government against liabilities for any damage to life or property arising from the occupancy and use of Forest Service's lands. (conditions 7,8,9,10).

5/ (1) Tongass National Forest Land Management Plan, Revision: Proposed Revised Forest Plan, U.S. Forest Service, 1991, Alaska (2) Alaska Outdoor Recreation Plan: 1981-1985, Alaska Department of Natural Resources, Division of Parks, 1981, Juneau, Alaska (3) North American Waterfowl Management Plan, U.S. Fish and Wildlife Service and Canadian Wildlife Service, 1986, Twin Cities, Minnesota.

development purposes and to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses.

The staff evaluated: (1) issuing the license as proposed by KPU with Section 4(e) conditions; (2) issuing the license as proposed by KPU with Sec.4(e) conditions plus additional measures; and (3) denying the license. The staff recommends the second option --the project as proposed by KPU with Sec.4(e) conditions plus additional measures--as the preferred alternative.

Staff's option, includes the following measures to protect, mitigate project impacts to, and enhance environmental resources at the project site:

- Maintain the water use agreement with the Southern Southeast Regional Aquaculture Association, Inc. (SSRAA); 6/
- Prepare a water release plan for the period of time from January 1, 1999, throughout the term of the license, to assure the Beaver Falls Sockeye Hatchery and any other water rights along Beaver Falls Creek are accommodated;
- Upgrade the trailhead sign-in area near the Beaver Falls powerhouse;
- Rehabilitate the picnic area near Lower Silvis dam;
- Upgrade the trail between Upper and Lower Silvis Lakes;
- Install a vehicular bridge near the Silvis powerhouse;
- Amend the project boundary to include the 2,100-foot-long recreation trail right-of-way, that lies largely outside the current project boundary, to ensure its reconstruction and maintenance; and

6/ KPU has an existing agreement with the Southern Southeast Region Aquaculture Association, Inc. to provide water for the operation of the Beaver Falls Sockeye Hatchery until December 31, 1998.

- Prepare a cultural resources management plan and a schedule to evaluate the significance of any archeological or historic sites discovered, and necessary steps to protect the sites.

The proposed measures would not affect the annual generation of the project. However, the recreational enhancement measures would cost about \$165,200 with an additional \$3,500 annual operation and maintenance cost. This translates to a levelized annual cost of about \$20,000.

The staff thinks KPU's proposed recreation plan would provide benefits that are worth their costs since: (1) the project is located close to the city of Ketchikan--relative to other recreational opportunities on the island--and is frequently used by recreationists, and (2) KPU's recreation plan would enhance the Deer Mountain-John Mountain Trail, a component of the National Recreation Trail System.

I believe that the benefits obtained from the measures listed above, justify the cost to KPU. The 7.1-MW project, as conditioned by this license, would continue to economically generate about 46.3 GWh annually. The clean energy that would be produced by the project would continue to displace fossil-fueled power generation, thereby conserving nonrenewable energy resources and reducing the emissions of noxious gases that contribute to atmospheric pollution and global warming.

ANNUAL CHARGES

Approximately, 38.32 acres of land within the boundary of the Beaver Falls Project were originally within the Tongass National Forest but in 1983 were the subject of an interim conveyance, under the Alaska Native Claims Settlement Act, to the Cape Fox Corporation (CFC) for the Native Village of Saxman. ^{7/} However, because the power site reservation for the project under Section 24 of the FPA (16 U.S.C. § 818) predates this conveyance, the acreage continues to be subject to the Section 24 federal reservation. As such, the acreage is subject to annual charges under Section 10(e) of the FPA, 16 U.S.C. § 803(e), for the use of federal reservation lands. ^{8/} Further, the licensee is entitled to continue to use the acreage, without any additional charge, for approved purposes under this license. Section 24

^{7/} Decision issued May 13, 1983, by Bureau of Land Management, Alaska State Office, in Docket Nos. AA 6986-A, AA 6986-B. The conveyance is subject to valid existing rights.

^{8/} Virginia Electric and Power Company, 49 FERC ¶ 61,378 1989.

states, in pertinent part, that any conveyance of federal lands subject to a power site withdrawal is subject to:

a reservation of the rights of the United States or its permittee or licensees to enter upon, occupy, and use any part or all of said lands necessary in the judgment of the Commission, for the purposes of (Part I of the FPA) which shall be expressly reserved in every patent issued for such lands; and no claim or right to compensation shall accrue from the occupation or use of any of said lands for said purposes.

Therefore, annual charges will continue to be assessed for the use, occupancy and enjoyment of the project's entire 544.32 acres of land.

LICENSE TERM

In 1986, the Electric Consumers Protection Act (ECPA) modified Section 15 of the FPA to specify that any license issued shall be for a term that the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years. The Commission's policy establishes 30-year terms for those projects that propose little or no redevelopment, new construction, new capacity or enhancement, 40-year terms for those projects that propose a moderate amount of redevelopment, new capacity or enhancement measures, and 50-year terms for those projects that propose extensive redevelopment, new construction, new capacity or enhancement measures.

Accordingly, because KPU does not propose any changes in the existing project works for the Beaver Falls Project, I am issuing this license for a term of 30 years.

PROJECT RETIREMENT

The Commission has issued a Notice of Inquiry (NOI), dated September 15, 1993, requesting comments that address the decommissioning of licensed hydropower projects. ^{2/} The NOI states that the Commission is not proposing new regulations at this time, but is inviting comments on whether new regulations may be appropriate. Alternatively, the Commission may consider issuing a statement of policy addressing the decommissioning of licensed hydropower projects, or take other measures. The Beaver Falls Project may be affected by future actions that the Commission takes with respect to issues raised in the NOI.

^{2/} Notice of Inquiry, Project Decommissioning at Relicensing, Dockets No. RM93-23-000, September 15, 1993.

Therefore, the license includes Article 203, which reserves authority to the Commission to require the licensee to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project.

By including Article 203, we don't intend to prejudge the outcome of the NOI. We are including the article so that the Commission will be in a position to make any lawful and appropriate changes in the terms and conditions of this license, which is being issued during the pendency of the NOI, based on the final outcome of that proceeding.

SUMMARY OF FINDINGS

Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the attached EA. Issuance of the license is not a major federal action significantly affecting the quality of the human environment.

The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the S&DA.

I conclude that the Beaver Falls Project does not conflict with any planned or authorized development, and is best adapted to the comprehensive development of the Beaver Falls River for beneficial public use.

THE DIRECTOR ORDERS:

(A) This license is issued to Ketchikan Public Utilities (licensee) for a period of 30 years, effective the first day of the month in which it is issued, to operate and maintain the Beaver Falls Project. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, as shown on exhibits G-1 through G-4 (FERC Drawing Numbers 110 through 113) of the application.

(2) The project consists of two separate but interrelated developments:

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(A) The Silvis Development consists of: (1) a 60-foot-high, 135-foot-long Upper Silvis dam (concrete-face rockfilled structure); (2) an 8-foot-high, 800-foot-long concrete apron spillway channel from Upper Silvis spillway to Lower Silvis Lake; (3) a reservoir--Upper Silvis Lake--with a surface area of about 300 acres and gross storage capacity of about 38,000 acre-feet at elevation 1,154 feet above mean sea level (msl); (4) a 7-foot-high, 980-foot-long, 5-foot-wide underground Tunnel No. 1; (5) a 375-foot-long, 36-inch-diameter steel penstock--Penstock No. 1 originating from the outlet of Tunnel No. 1; (6) the Silvis powerhouse containing one 2.1-MW unit; (7) a trapezoidal-shaped channel tailrace about 150 feet long discharging into Lower Silvis Lake; (8) a 2,900-foot-long, 5-kilovolt (kV) submarine cable beneath Lower Silvis Lake and a 7,100-foot-long, 34.5-kV aerial transmission line; and (9) other appurtenances.

(B) The Beaver Falls Development consists of: (1) a 32-foot-high, 140-foot-long Lower Silvis dam (concrete-face rockfilled structure); (2) a 3-foot-high, 140-foot-long mass concrete spillway; (3) a 3-foot-high, 40-foot-long mass concrete Beaver Falls Creek diversion dam, with 6-inch-high flashboards; (4) a reservoir--Lower Silvis Lake--with a surface area of about 67.5 acres and gross storage capacity of about 8,052 acre-feet at elevation 827 feet msl; (5) an intake structure at Lower Silvis Lake; (6) a 3,800-foot-long, 7-foot-high, and 7-foot-wide underground Tunnel No. 2; (7) a 3,600-foot-long, 3.5 feet in diameter above-ground steel penstock--Penstock No. 2 originating from the outlet of Tunnel No. 2 continuing through Tunnel No. 3 and feeding units 3 and 4 (2,000-kW each) at the Beaver Falls powerhouse; (8) a 4,170-foot-long, 28 inches in diameter above-ground steel penstock--Penstock No. 3 originating from the Beaver Falls Creek diversion dam and feeding unit 1 (1,000-kW) at the Beaver Falls powerhouse; (9) a 225-foot-long, 20 inches in diameter wood stave pipe from Tunnel No. 2 discharging into Beaver Falls Creek just upstream of the Beaver Falls Creek diversion dam; (10) the Beaver Falls powerhouse containing four generating units with a total installed capacity of 5 MW (unit 2 has been decommissioned); and (11) other appurtenances.

The project works generally described above are more specifically described in exhibit A of the license application and shown by exhibit F:

<u>Exhibit F-</u>	<u>FERC No. 1922-</u>	<u>Showing</u>
F-1	101	Upper and Lower Silvis Dams
F-2	102	Upper Silvis Spillway - plan, profile, and sections
F-2.1	114	Silvis Development - power conduit profile

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F-3	103	Silvis Powerhouse - plans and sections
F-4	104	Beaver Falls Power Plant - power conduit profile
F-5	105	Beaver Falls Powerhouse - area plan
F-6	106	Beaver Falls Powerhouse - plan and section
F-7	107	Beaver Falls Substation - elevations
F-8	108	One line electrical diagram
F-9	109	Beaver Falls Creek Diversion Dam

(3) All of the structures, fixtures, equipment, or facilities used to operate or maintain the project and located within the project boundary, all portable property that may be employed in connection with the project and located within or outside the project boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibits A, F and G of the license application are approved and made part of the license.

(D) This license is subject to the articles set forth in Form L-1 (October 1975) entitled "Terms and Conditions of License for Constructed Major Project Affecting Lands of the United States" and the following additional articles:

Article 101. Notwithstanding the authorizations granted under the Federal Power Act, National Forest System lands within the project boundaries shall be managed by the Forest Service under the laws, rules, and regulations applicable to the National Forest System.

Article 102. Before any construction of the project occurs on National Forest System lands, the licensee shall obtain the prior written approval of the Forest Service for all final design plans for project components when the Forest Service deems as affection or potentially affection National Forest System resources. The Forest Service may require adjustments in final plans and facility locations to preclude or mitigate impacts and to assure that the project is compatible with on-the-ground conditions. Should such necessary adjustments be deemed by the Forest Service, the Commission or the licensee shall follow the schedules and procedures for design review and approval specified in the Forest Service special use authorization. As part of such prior written approval, the Forest Service may require

adjustments in final plans and facility locations to prelude or mitigate impacts and to assure that the project is compatible with on-the-ground conditions. Should such necessary adjustments be deemed by the Forest Service, the Commission, or the licensee to be a substantial change, the licensee shall follow the procedures outlined in Article 2 [Form L-1] of the license. Any changes to the license made for any reason pursuant to Article 2 [Form L-1] or Article 3 [Form L-1] shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to section 4(e) of the Federal Power Act.

Article 103. Notwithstanding any license authorization to make changes to the project, the licensee shall get written approval from the Forest Service prior to making any changes in the location of any constructed project features or facilities, or in the uses of project lands and waters, or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the Forest Service, and at least 60 days prior to initiation of any such changes or departure, the licensee shall file a report with the Commission describing the changes, the reason for the changes and showing the approval of the Forest Service for such changes. The licensee shall file an exact copy of the report with the Forest Service at the same time it is filed with the Commission. This article does not relieve the licensee from the amendment of other requirements of Article 2 [Form L-1] or Article 3 [Form L-1] of this license.

Article 104. Each year during the 60 days preceding the anniversary date of the license, the licensee shall consult with the Forest Service with regard to measures needed to ensure protection and development of the natural resource values of the project area. Within 60 days following such consultation, the licensee shall file with the Commission evidence of the consultation with any recommendations made by the Forest Service. The Commission reserves the right, after notice and opportunity for hearing, to require changes in the project and its operation that may be necessary to accomplish natural resource protection.

Article 105. If archeological or historic sites are discovered during project operation, the licensee shall: (1) cease operations and consult with the Alaska State Historic Preservation Office (SHPO) and the Forest Service; (2) prepare a cultural resources management plan and a schedule to evaluate the significance of the sites and to avoid or mitigate any impacts to any sites found eligible for inclusion in the National Register of Historic Places; (3) base the plan on the recommendations of the SHPO and the Secretary on the Interior's Guidelines for Archeology and Historic Preservation; (4) file the plan for Commission approval, together with the written recommendations of the SHPO on the plan; and (5) take the necessary steps to protect

the discovered sites from further impact until notified by the Commission that all of these requirements have been satisfied.

The Commission may require a cultural resources survey and changes to the cultural resources management plan based on the filing. The licensee shall not implement a cultural resources management plan or begin any land clearing or land disturbing activities in the vicinity of any discovered sites until informed by the Commission that the requirements of this provision have been fulfilled.

Article 106. The licensee shall implement the Recreation Plan filed on November 19, 1992, as amended by the (1) additional information filing of July, 1992, (2) official transcript of the Beaver Falls Hydroelectric Scoping Meeting on November 18, 1993, and (3) December 7, 1993, comments of Ketchikan Public Utilities on the scoping document for the Beaver Falls Project.

The recreational enhancements shall consist of: (1) upgrading the trailhead area near the Beaver Falls powerhouse by providing the following enhancements: (a) a gate and lock on the access road, (b) new access interpretive and parking signs, (c) a new trail register, and (d) a Forest Service approved toilet; (2) rehabilitating and maintaining the picnic area near Lower Silvis dam by: (a) repairing or replacing the picnic tables, fire rings, garbage cans, and stairways of Lower Silvis dam, and (b) installing an additional picnic table that will be wheelchair accessible; (3) reconstructing and maintaining the 2,100-foot-long trail segment, including stairs and handrails, between Upper and Lower Silvis Lakes; and (4) installing a bridge near the Silvis powerhouse.

The licensee shall complete construction of the recreational facilities stated above within two years from the issuance of the license. Within 90 days after finishing construction, the licensee shall file for Commission approval revised exhibit A, F, and G to describe the recreational facilities as-built. The Commission and the Forest Service reserve the right to require changes to the recreational plan.

Article 107. The licensee shall maintain the improvements and premises to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer. For example, trash, debris, unusable equipment, etc., will be disposed of separately; other material will be stacked, stored neatly, or within buildings.

Article 108. Avalanches, rising waters, high winds, limbs or trees, and other hazards are natural phenomena in the forest that present risks to the licensee's property that the licensee

assumes. The licensee is responsible for inspecting the site, right-of-way, and the immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and, after securing permission from the Forest Service, is responsible for removing such hazards.

Article 109. The United States shall have unrestricted use of the said right-of-way and any road constructed thereon for all purposes deemed necessary or desirable in conjunction with the protection, administration, management, and utilization of federal lands or resources and alone shall have the right to extent rights privileges for use of the right-of-way and road thereon to states and local subdivisions thereof, as well as to other uses, including members of the public, except contractors, agents and employees of the licensee; provided, that the agency having jurisdiction shall control such use so as not unreasonably to interfere with use of the road by the licensee or cause the licensee to bear a share of the cost of maintenance greater than the licensee's use bears to all use of the road.

Article 110. The licensee shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of National Forest lands under this license.

Article 201. The licensee shall pay the United States the following annual charges as determined by the Commission, effective the first day of the month in which this license is issued for the purposes of:

a. Reimbursing the United States for the cost of administration of Part I of the Act. The authorized installed capacity for that purpose is 9,470 horsepower.

b. Recompensing the United States for the use, occupancy and enjoyment of 544.32 acres of its lands, other than for transmission line right-of-way.

Article 202. Pursuant to Section 10(d) of the Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified

rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserved account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly includible in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10 year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 203. The Commission reserves authority, in the context of a rulemaking proceeding or a proceeding specific to this license, to require the licensee at any time to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project. The terms of this article shall be effective unless the Commission, in Docket No. RM93-23, finds that the Commission lacks statutory authority to require such actions, or otherwise determines that the article should be rescinded.

Article 204. (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 type of use and occupancy of project lands and water 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 and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the 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-kV or less); and (8) water intake or pumping facilities that do not extract more than one 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. If no conveyance was made during the prior calendar year, the licensee shall so inform the Commission and the Regional Director in writing no later than January 31 of each year.

(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 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 one-half 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 five 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:

(1) 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.

(2) 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 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 401. The licensee shall permit the diversion of 5.6 cubic feet per second of water from the project penstock, in accordance with the agreement dated November 9, 1992, between the licensee, city of Ketchikan, and the Southern Southeast Regional Aquaculture Association, Incorporated (SSRAA), for operating the Beaver Falls Sockeye Hatchery facilities. The licensee shall file a plan with the Commission, for approval, by December 31, 1997, to specify how the water rights to the hatchery would be maintained after the agreement expires on December 31, 1998, and throughout the remainder of the license term.

The plan, at a minimum, shall include:

(a) a description of the water rights, including the amount needed for operation of the hatchery in the future, and

(b) a description of how the project would accommodate any other water rights that might be affected by continued future project operation.

The licensee shall prepare the plan after consultation with the Forest Service, the SSRAA, and the Alaska Department of Fish and Game.

The licensee shall include with the plan documentation of consultation, copies of the consulted entities comments and recommendations, on the completed plan after it has been prepared and provided to the entities consulted, and specific descriptions of how their comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee doesn't adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the licensee's plan. Upon Commission approval, the licensee shall carry-out the recommendations, including any changes required by the Commission.

Article 402. Within 6 months from the date of issuance of this order, the licensee shall file for Commission approval a revised exhibit G to include within the project boundary the lands needed for reconstruction, use, and maintenance of the segment of trail between Upper and Lower Silvis Lakes described in Article 105.

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.

(E) 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 the Commission filing. Proof of service on these entities must accompany the filing with the Commission.

(F) This order is issued under authority delegated to the Director and constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of this order, pursuant to 18 C.F.R. § 385.713. The filing of a request for rehearing does not operate as a stay of the effective date of this order 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 shall constitute acceptance of this order.



Fred E. Springer
Director, Office of
Hydropower Licensing

Document Content(s)

P-1922 11-7-1994.PDF.....1-22

87 FERC ¶ 62,107

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Ketchikan Public Utilities)

Project No. 1922-025

ORDER AMENDING LICENSE

APR 27 1999

On February 12, 1999, Ketchikan Public Utilities (KPU), licensee for the Beaver Falls project, FERC No. 1922, filed an application to amend its license. 1/ The filing was made pursuant to a settlement agreement reached between Cape Fox Corporation (CFC), a Native Village Corporation, and KPU. The project is located on the Beaver Falls Creek in the first Judicial District of Alaska. About 80 percent of the project occupies lands of the United States within the Tongass National Forest.

BACKGROUND

On November 7, 1994, the Commission issued a new license to KPU. Standard Article 5 requires the licensee to obtain the right to use project lands within 5 years from the date of the licensing order. CFC had acquired ownership of 38.32 acres of land, 19.61 acres of which had been reserved for the Beaver Falls Project. A settlement agreement has been reached between CFC and KPU allowing KPU the right to use CFC lands for project purposes. The agreement involves including a small amount of additional land within the project boundary and excluding of a small amount of non-essential land from the project. The net effect of the agreement will increase 1.21 acres of non-federal lands within the project boundary.

REVIEW

The settlement between CFC and KPU was necessary to allow KPU to meet the requirements license article 5. The effect of the boundary changes is minor and will have no adverse effect on the environment or the operation of the project. It will be necessary for the licensee to file revised exhibit F and G drawings to show the changes proposed in its application for amendment.

The Director Orders:

(A) The license of the Beaver Falls Project, FERC No. 1922, is amended as described in Paragraph B below, effective the issuance date of this order.

1/ 69 FERC ¶62,113, Order Issuing New License (Major Project)

9904280461-3

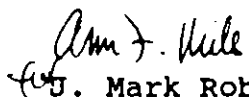
Project No. 1922-025

-2-

(B) The project boundary is revised as described and shown in the Application for Amendment of License filed February 12, 1999.

(C) Within 90 days from the issuance date of this order, the licensee shall file revised exhibit F and G drawings showing the revised project boundary.

(D) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. § 385.713.


J. Mark Robinson
Director
Division of Licensing and Compliance

162 FERC ¶ 62,169

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

Ketchikan Public Utilities

Project No. 1922-050

**ORDER AMENDING LICENSE, REVISING PROJECT BOUNDARY, APPROVING
REVISED EXHIBIT G DRAWINGS, AND REVISING ANNUAL CHARGES**

(Issued March 19, 2018)

1. On October 10, 2017, and as supplemented on March 6, 2018, Ketchikan Public Utilities (KPU), licensee for the Beaver Falls Hydroelectric Project No. 1922, filed an application to amend its project boundary and correct federal acreage and its annual transmission line charges, pursuant to Article 201 of the project license.¹ The project is located on the Beaver Falls Creek in the First Judicial District of Alaska. The project occupies, in part, federal lands within the Tongass National Forest.

Background

2. Article 201 of the license states that the licensee must pay the United States annual charges as determined by the Commission, effective the first day of the month in which the license is issued for the purposes of: a) reimbursing the United States for the cost of administration of Part I of the Act. The authorized installed capacity for that purpose is 9,470 horsepower, b) recompensing the United States for the use, occupancy and enjoyment of 544.32 acres of its lands,² other than for transmission line right-of-way.

¹ *Ketchikan Public Utilities*, 69 FERC ¶ 62,113 (1994).

² This included 38.32 acres of land within the boundary of the Beaver Falls Project, which were originally within the Tongass National Forest but in 1983 were the subject of an interim conveyance, under the Alaska Native Claims Settlement Act, to the Cap Fox Corporation for the Native Village of Saxman. However, this acreage continued to be subject to the Section 24 federal reservation and, therefore, subject to annual charges under Section 10(e) of the FPA, 16 U.S.C. § 803(e), for the use of federal reservation lands, because the power site reservation for the project under Section 24 of the FPA (16 U.S.C. § 818) predates the conveyance.

3. Subsequently, in a request for rehearing of the license order, the Cap Fox Corporation (CFC) for the Native Village of Saxman petitioned the Commission to have the 38.32 acres removed from the annual charges calculation since it argued that their Section 24 reservation should not be applied to those acres since a goal of the land transfer, under the Alaska Native Claims Settlement Act, was to make sure the economic benefit of the transfer would accrue to the appropriate native corporation. The Commission issued an order granting rehearing in 1996 and ruled that the total acreages subject to annual charges should be reduced by 38.32 acres (resulting in 506 acres of federal lands), since the Commission concluded (in another case subsequent to the issuance of the 1994 license) that congress intended that the Native organizations, rather than the United States, be the ones to benefit economically from the use of the land. Therefore, ordering paragraph (B) of the Commission's Order Granting Intervention and Rehearing amended Article 201(b) of the license to read: Recompensing the United States for the use, occupancy, and enjoyment of 506 acres of its lands, other than for transmission line right-of-way.³ The licensee and CFC then executed a settlement agreement, in 2000, in which the project lands selected by CFC under the Alaska Native Claims Settlement Act would be conveyed back to the licensee (with easements for CFC developments near the project).

Proposed Amendment

4. In its amendment application, KPU requests amending its project boundary due to updated mapping techniques and more precise delineation of the boundary. KPU proposes to re-align the boundary around Upper Silvis Lake to 1,154 feet from its previous contour of 1,170 feet (the boundary around Lower Silvis Lake would remain at the 827-foot contour). KPU also requests to include portions of an access road and the recreational hiking trail between Lower and Upper Silvis Lakes within the project boundary. Therefore KPU requests to revise the exhibit G's⁴ to reflect these boundary changes and to amend license Article 201 to reflect the updated acreage. KPU further requests to remove the annual transmission line charges of 121.927 acres from the annual charge statement since these transmission lines are not within the project boundary, nor are they described the current Exhibit A of the project. Finally, KPU states that the Commission's annual charges statements never reflected the new lowered acreage (506 acres) approved under the 1996 Order. Therefore, KPU states that it has been overpaying

³ *Ketchikan Public Utilities*, 74 FERC ¶ 61,051 (1996).

⁴ The exhibit G's filed on March 6, 2018 update the exhibits filed with the amendment application on October 10, 2017. The updated exhibit filing distinguishes acreages of non-federal lands within the project boundary that are also subject to power site reservation Under Section 24 of the Federal Power Act.

for 38.32 acres in the intervening years, and requests that the Commission correct the annual charge statements to reflect the new acreage.

Review

Exhibit G Drawings

5. We reviewed and georeferenced the revised Exhibit G drawings filed on March 6, 2018, and found them to be in agreement with our current mapping requirements. The licensee updated the contour line around Upper Silvis Lake which, as the licensee proposed, was re-aligned to 1,154 feet from its previous contour of 1,170 feet.⁵ In addition, we determined that the revised Exhibit G-3 combines two existing drawings: G-3 (P-1922-121) and G-4 (P-1922-124). We will, therefore, delete Exhibit G-4 from the license, as directed in ordering paragraph (A). The licensee also added portions of an existing access road and the recreational hiking trail between Lower and Upper Silvis Lakes, required by the project's Recreation Plan, into the project boundary.⁶ The revised Exhibit G-1, G-2, and G-3 drawings filed on March 6, 2018, conform to the Commission's rules and regulations and should be approved. We are assigning new Exhibit G drawing numbers and requiring the licensee to file the approved exhibit drawings and associated geographic information system data in electronic file format, as directed in ordering paragraph (B) below.

Annual Charges

6. The licensee included a breakdown of the amount of federal land that the project occupies on its drawings and provided supporting discussion in its filing that accompanies the drawings. The exhibits identify the project occupies a total of 500 acres of federal land, of which 21.6 acres are subject to Section 24 of the Federal Power Act. The licensee also included, in its applications, copies of land transfer documents that show the United States transferred federal lands to CFC, as well the deeds showing the land transfer from CFC to KPU (through a settlement agreement). Based on this information, we find that the land ownership has been properly documented and totaled. Therefore, Ordering paragraph (C) of this order amends Article 201 of the license to

⁵ Upper Silvis Lake normal maximum reservoir elevation is at 1,154 feet. The licensee matched the boundary with the visibly discernable vegetation line at the maximum normal water surface elevation for each development and determined the more appropriate project boundary.

⁶ Article 106 of the project's license requires the licensee to implement the Recreation Plan filed on November 19, 1992, and to adhere to several provisions also outlined by the article.

reflect the updated federal lands acreage. Because the Commission no longer assesses annual charges for Section 24 lands,⁷ the revision to the acreage in Article 201 only reflects the project boundary occupying federal lands within the Tongass National Forest. However, the licensee should still identify the Section 24 lands on the geographic information system federal land shapefile required in ordering paragraph (B).

Transmission Lines

7. The licensee identified 121.927 acres related to transmission line annual charges that should be removed from the annual charges statement since they are not within the project boundary, nor are they described in the approved Exhibit A. The licensee states that the project boundary concludes at the substation, from which point the transmission and distribution line crosses over State of Alaska, CFC, and other non-federal entity lands. The licensee included with its filing correspondence from the Commission to KPU regarding Primary Line Determination (April 30, 1990 letter). The licensee, therefore, states that the primary transmission line for this project terminates at the substation (which is within the project boundary). Based on our review of the filed exhibit drawings, we verified that the project boundary concludes at the substation and that transmission lines outside of the project boundary are not subject to annual charges.⁸ Therefore, Ordering paragraph (C) of this order amends Article 201 to remove transmission line charges outside of the project boundary.

Miscellaneous (Exhibit A)

8. During our review of the Exhibit G drawings, we identified that the approved Exhibit A for the project requires revision to reflect the accurate amount of federal lands occupied by the project consistent with the Exhibit G drawings. Ordering paragraph (D) of this order requires the licensee, within 45 days from the issuance date of this order, to file a revised Exhibit A, in its entirety, in two forms:

- a) A strike through format, i.e. strikethrough items to be removed and underline or bold items to be added to the exhibit, and
- b) A final, clean copy incorporating the changes (i.e. without the strikethrough, underline, and bold notations).

⁷ See *Annual Update to Fee Schedule*, 142 FERC ¶ 62,166 (February 27, 2013), and *Power Site Reservations Fees Group*, 142 FERC ¶ 61,196, at P 7 (2013).

⁸ The original license included a transmission line from Beaver Falls to Herring Cove. The Commission's April 30, 1990 letter advised the licensee that the primary line for the project did not include this segment.

We encourage the licensee to take this opportunity to review the entire Exhibit A and the project description in ordering paragraph (B)(2) of the license, to ensure they accurately describe the project.

The Director orders:

(A) Ketchikan Public Utilities' filing of revised Exhibit G drawings, on March 6, 2018, for the Beaver Falls Hydroelectric Project No. 1922, are approved as shown in the table below. The superseded exhibits are deleted from the license. Furthermore, Exhibit G-4 is deleted from the license.

Exhibit	FERC Drawing No.	Superseded FERC Drawing No.	Drawing Title
G-1	P-1922-125	P-1922-119	Project Boundary
G-2	P-1922-126	P-1922-120	Project Boundary
G-3	P-1922-127	P-1922-121 and P-1922-124	Project Boundary

(B) Within 45 days of the date of issuance of this order, as directed below, the licensee must file two sets of the approved exhibit drawings, form FERC-587, and geographic information system (GIS) data in electronic file format on compact disks with the Secretary of the Commission, ATTN: OEP/DHAC.

a) Digital images of the approved exhibit drawings must be prepared in electronic format. Prior to preparing each digital image, the FERC Project-Drawing Number (*i.e.*, P-1922-125, P-1922-126, and P-1922-127) must be shown in the margin below the title block of the approved drawing. Each drawing must be a separate electronic file, and the file name must include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this order, and file extension in the following format [P-1922-125, G-1, Project Boundary, MM-DD-YYYY.TIF].

Each Exhibit G drawing that includes the project boundary must contain a minimum of three known reference points (*i.e.*, latitude and longitude coordinates or state plane coordinates). The points must be arranged in a triangular format for GIS georeferencing the project boundary drawing to the polygon data, and must be based on a standard map coordinate system. The spatial reference for the drawing (*i.e.*, map projection, map datum, and units of measurement) must be identified on the drawing and each reference point must be labeled. In addition, a registered land surveyor must stamp each project boundary drawing. All digital images of the exhibit drawings must meet the following format specification:

IMAGERY:	black & white raster file
FILE TYPE:	Tagged Image File Format, (TIFF) CCITT Group 4 (also known as T.6 coding scheme)
RESOLUTION:	300 dots per inch (dpi) desired, (200 dpi minimum)
SIZE FORMAT:	22" x 34" (minimum), 24" x 36" (maximum)
FILE SIZE:	less than 1 megabyte desired

A third set (Exhibit G only) and a copy of Form FERC-587 must be filed with the Bureau of Land Management office at the following address:

State Director
Bureau of Land Management
Division of Alaska Lands
222 W 7th Ave Stop 13
Anchorage, AK 99513-7504
ATTN: FERC Withdrawal Recordation

Form FERC-587 is available through the Commission's website at the following URL: <http://www.ferc.gov/docs-filing/forms/form-587/form-587.pdf>. Although instruction no. 3 requires microfilm copies of the project boundary maps in aperture card format, electronic copies that meet the digital specifications in this ordering paragraph should be substituted. If the FERC-587 cannot be downloaded from the Internet, a hard copy may be obtained by mailing a request to the Secretary of the Commission.

b) Project boundary GIS data shall be in a georeferenced electronic file format (such as ArcGIS shapefiles, GeoMedia files, MapInfo files, or a similar GIS format). The filing must include both polygon data and all reference points shown on the individual project boundary drawings. An electronic boundary polygon data file(s) is required for each project development. Depending on the electronic file format, the polygon and point data can be included in single files with multiple layers. The georeferenced electronic boundary data file must be positionally accurate to ± 40 feet in order to comply with National Map Accuracy Standards for maps at a 1:24,000 scale. The file name(s) must include: FERC Project Number, data description, date of this order, and file extension in the following format [P-1922, boundary polygon/or point data, MM-DD-YYYY.SHP]. The filing must be accompanied by a separate text file describing the spatial reference for the georeferenced data: map projection used (*i.e.*, UTM, State Plane, Decimal Degrees, etc.), the map datum (*i.e.*, North American 27, North American 83, etc.), and the units of measurement (*i.e.*, feet, meters, miles, etc.). The text file name must include: FERC Project Number, data description, date of this order, and file extension in the following format [P-1922, project boundary metadata, MM-DD-YYYY.TXT].

In addition, for those projects that occupy federal lands, a separate georeferenced polygon file(s) is required that identifies transmission line acreage and non-transmission line acreage affecting federal lands for the purpose of meeting the requirements of 18 C.F.R. §11.2. The file(s) must also identify each federal owner (*e.g.*, Bureau of Land Management, Forest Service, U.S. Army Corps of Engineers, etc.), land identification (*e.g.*, forest name, Section 24 lands, national park name, etc.), and federal acreage affected by the project boundary. Depending on the georeferenced electronic file format, the polygon, point, and federal lands data can be included in a single file with multiple layers.

(C) This order revises Article 201 of the license read as follows:

Article 201. Annual Charges. The licensee shall pay the United States annual charges, effective the first day of the month in which the license is issued, and as determined in accordance with the provisions of the Commission's regulations in effect from time to time, for the purposes of:

- (a) Reimbursing the United States for the cost of administration of Part I of the Federal Power Act. The authorized installed capacity for that purpose is 9,470 horsepower.
- (b) Recompensing the United States for the use, occupancy, and enjoyment of 478.4 acres of its lands, including those for transmission line right-of-way. In addition, the project occupies 21.6 acres of lands that are identified as section 24 lands. Under the Commission's policy currently in effect, the Commission no longer assesses an annual charge for section 24 lands.

(D) Within 45 days from the issuance date of this order, the licensee must file a revised Exhibit A, in its entirety, in two forms:

- (a) A strike through format, i.e. strikethrough items to be removed and underline or bold items to be added to the exhibit, and
- (b) A final, clean copy incorporating the changes (i.e. without the strikethrough, underline, and bold notations).

We encourage the licensee to take this opportunity to review the entire Exhibit A, and the project description in ordering paragraph (B)(2) of the license, to ensure they accurately describe the project.

(E) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 825*l* (2012), and the Commission's regulations at 18 C.F.R. § 385.713 (2017). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

Kelly Houff
Chief, Engineering Resources Branch
Division of Hydropower Administration
and Compliance

Document Content(s)

P-1922-050 Order.DOCX.....1-8

APPENDIX C
USFWS IPAC REPORT



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Anchorage Fish And Wildlife Conservation Office
4700 Blm Road
Anchorage, AK 99507
Phone: (907) 271-2888 Fax: (907) 271-2786



In Reply Refer To:
Consultation Code: 07CAAN00-2019-SLI-0008
Event Code: 07CAAN00-2019-E-00192
Project Name: Beaver Falls Hydroelectric Project

February 01, 2019

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and some candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Please note that candidate species are not included on this list. We encourage you to visit the following website to learn more about candidate species in your area: http://www.fws.gov/alaska/fisheries/fieldoffice/anchorage/endangered/candidate_conservation.htm

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Anchorage Fish And Wildlife Conservation Office

4700 Blm Road

Anchorage, AK 99507

(907) 271-2888

Project Summary

Consultation Code: 07CAAN00-2019-SLI-0008

Event Code: 07CAAN00-2019-E-00192

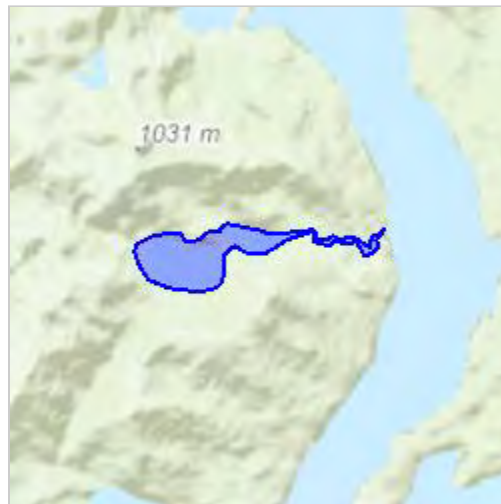
Project Name: Beaver Falls Hydroelectric Project

Project Type: POWER GENERATION

Project Description: FERC Relicensing

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/55.378641875000056N131.53318204548643W>



Counties: Ketchikan Gateway, AK

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922) STAKEHOLDER INFORMATION QUESTIONNAIRE

The City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities (KPU) is the licensee and operator of the Beaver Falls Hydroelectric Project (FERC No. 1922) (Project), located on Beaver Falls Creek, approximately six miles northeast of the City of Ketchikan in the First Judicial District of Alaska. The Beaver Falls Project has an authorized capacity of 7.1 MW and consists of two developments: Silvis and Beaver Falls (see Figure 1).

Under the Federal Power Act, the Federal Energy Regulatory Commission (FERC) administers the licensing and relicensing of the Beaver Falls Project. The existing FERC license for the Project expires on October 31, 2024, and KPU, with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the relicensing process. Accordingly, KPU is preparing a Notice of Intent (NOI) to relicense the Project and Pre-Application Document (PAD) to be filed with the FERC no later than October 31, 2019. The PAD will provide FERC and stakeholders with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity.

This Stakeholder Information Questionnaire is being used to help identify sources of existing, relevant, and reasonably available information pertinent to the Project that is not currently in KPU's possession. This information will help to identify any data collection needs or potential resource issues early in the relicensing process. Our intent is to include results of this information request in the PAD.

We respectfully request that you please complete and return this Stakeholder Information Questionnaire to Katie Sellers via email at katie.sellers@kleinschmidtgroup.com **within 2 weeks of receipt**. This will allow for any follow-up contact that may be needed by KPU or Kleinschmidt.

If we do not receive a response within 2 weeks, this will indicate that:

- you are not aware of any existing, relevant, and reasonably available information that describes the existing Project environment; and
- unless you are representative of a tribe or federal or state agency, you (and your organization) are not interested in receiving any further correspondence regarding this proceeding and you will be removed from the distribution list.

We greatly appreciate your response and assistance in this effort to identify information resources and interested parties in this proceeding.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

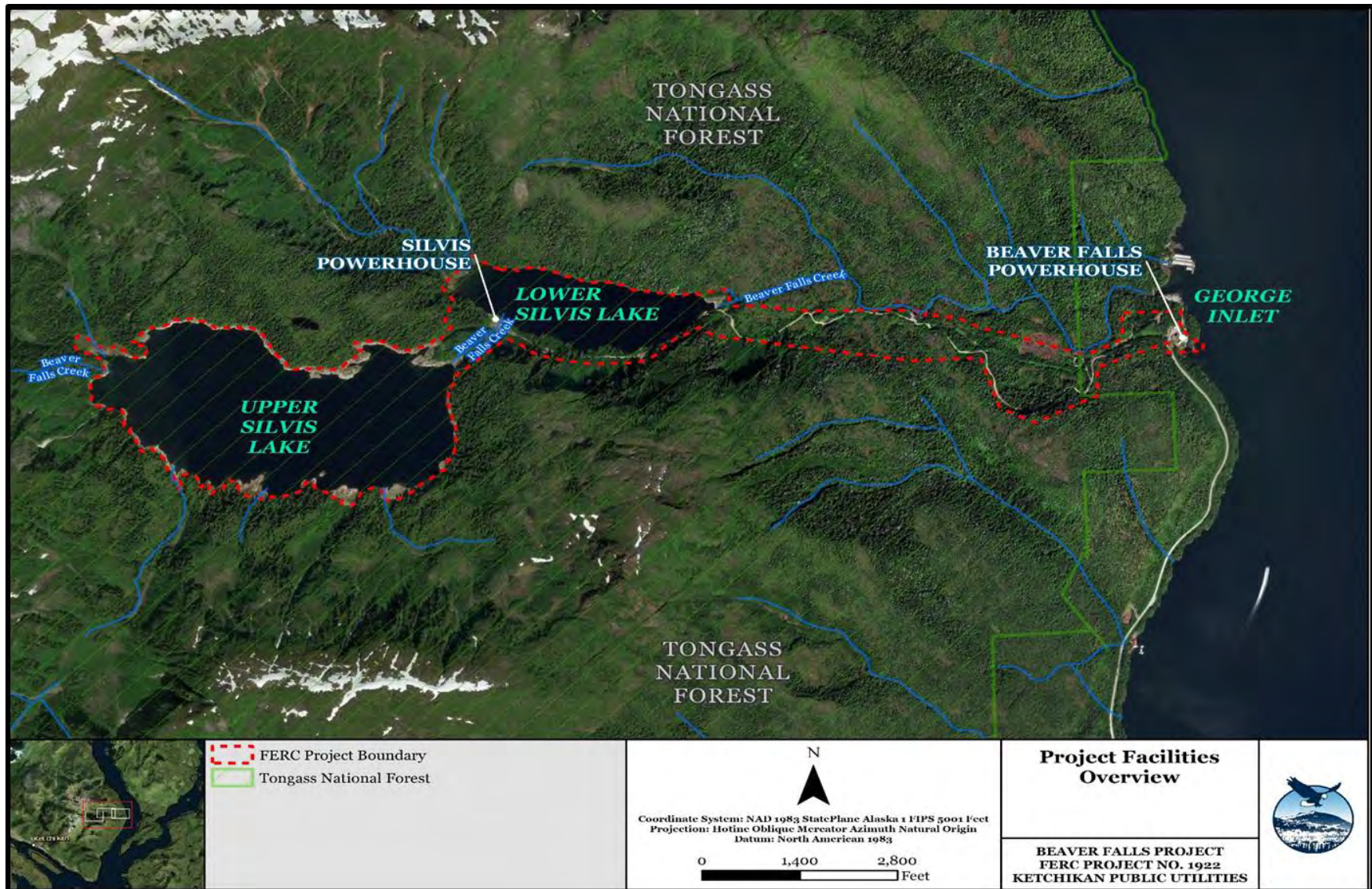


FIGURE 1 BEAVER FALLS PROJECT LOCATION

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

1. Please provide the following information about the person completing this questionnaire.

Name & Title	
Organization	
Address	
Phone	
Email Address	

2. Do you or your organization plan to participate in the Beaver Falls Project's relicensing proceeding?

☐ Yes (if yes, please complete information below) ☐ No (if no, please go to No. 3)

Please provide the contact information for the representative(s) of your organization that will be participating in the relicensing process for this Project. (***Additional contacts may be provided on a separate page.***)

Name & Title	
Organization	
Address	
Phone	
Email Address	

3. If you and the entity you represent do not want to receive any further correspondence associated with this proceeding, please indicate so here:

☐ Please remove me and the entity I represent from the mailing list.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

4. Do you or your organization know of any existing, relevant, and reasonably available information that describes the Beaver Falls Project's existing or historical environment (i.e., Project area, adjacent Project vicinity, or areas upstream or downstream of the Project)?

☐ Yes (if yes, please complete Nos. 4a through 4d) ☐ No (if no, please go to No. 5)

- a. If yes, please circle the specific resource area(s) that the information relates to:

- | | |
|--------------------------------------------|------------------------------|
| • Geology and soils | • Recreation and land use |
| • Water resources | • Aesthetic resources |
| • Fish and aquatic resources | • Cultural resources |
| • Wildlife and botanical resources | • Socioeconomic resources |
| • Wetlands, riparian, and littoral habitat | • Tribal resources |
| • Rare, threatened, and endangered species | • Other resource information |

- b. Please briefly describe the information referenced above and/or list available documents (*additional information may be provided on page 6 of this questionnaire*).

- c. Please provide referenced document, source website link, or description of where KPU can obtain this information, if available.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

- d. Based on the specific resource areas listed in 4a, are you aware of any specific issues related to the identified resource area(s)?

___ Yes (*please list specific issues below*) ___ No (*if no, please go to No. 5*)

Resource Area	Description of Issue

5. If you have additional comments and/or questions regarding the Beaver Falls Project, or the relicensing process, please provide them below.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

Additional Information:

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922) STAKEHOLDER INFORMATION QUESTIONNAIRE

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Under the Federal Power Act, the Federal Energy Regulatory Commission (FERC) administers the licensing and relicensing of the Beaver Falls Project. The existing FERC license for the Project expires on October 31, 2024, and KPU, with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the relicensing process. Accordingly, KPU is preparing a Notice of Intent (NOI) to relicense the Project and Pre-Application Document (PAD) to be filed with the FERC no later than October 31, 2019. The PAD will provide FERC and stakeholders with existing, relevant, and reasonably available information pertaining to the Project as well as resources within the Project vicinity.

This Stakeholder Information Questionnaire is being used to help identify sources of existing, relevant, and reasonably available information pertinent to the Project that is not currently in KPU's possession. This information will help to identify any data collection needs or potential resource issues early in the relicensing process. Our intent is to include results of this information request in the PAD.

We respectfully request that you please complete and return this Stakeholder Information Questionnaire to Katie Sellers via email at katie.sellers@kleinschmidtgroup.com **within 2 weeks of receipt**. This will allow for any follow-up contact that may be needed by KPU or Kleinschmidt.

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- unless you are representative of a tribe or federal or state agency, you (and your organization) are not interested in receiving any further correspondence regarding this proceeding and you will be removed from the distribution list.

We greatly appreciate your response and assistance in this effort to identify information resources and interested parties in this proceeding.

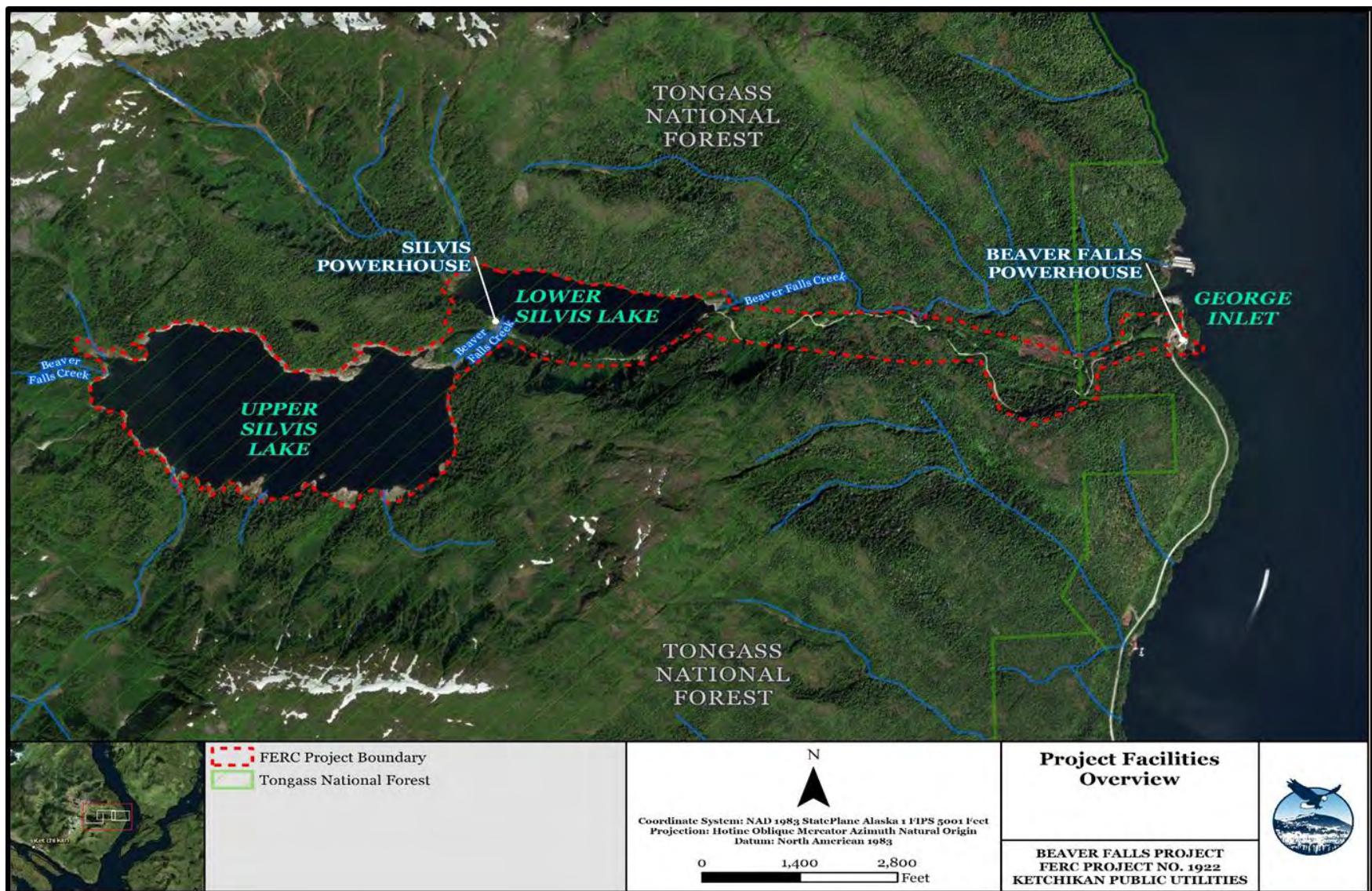


FIGURE 1 **BEAVER FALLS PROJECT LOCATION**

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

1. Please provide the following information about the person completing this questionnaire.

Name & Title	Kevin Keith, FERC Hydropower Coordinator
Organization	Alaska Department of Fish and Game
Address	333 Raspberry Road Anchorage, AK 99518
Phone	(907) 276-2836
Email Address	Kevin.Keith@alaska.gov

2. Do you or your organization plan to participate in the Beaver Falls Project's relicensing proceeding?

☒ Yes (if yes, please complete information below) ☐ No (if no, please go to No. 3)

Please provide the contact information for the representative(s) of your organization that will be participating in the relicensing process for this Project. (*Additional contacts may be provided on a separate page.*)

Name & Title	same as above
Organization	
Address	
Phone	
Email Address	

3. If you and the entity you represent do not want to receive any further correspondence associated with this proceeding, please indicate so here:

☐ Please remove me and the entity I represent from the mailing list.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

4. Do you or your organization know of any existing, relevant, and reasonably available information that describes the Beaver Falls Project's existing or historical environment (i.e., Project area, adjacent Project vicinity, or areas upstream or downstream of the Project)?

☒ Yes (if yes, please complete Nos. 4a through 4d) ☐ No (if no, please go to No. 5)

a. If yes, please circle the specific resource area(s) that the information relates to:

- | | |
|--------------------------------------------|------------------------------|
| • Geology and soils | • Recreation and land use |
| • Water resources | • Aesthetic resources |
| • Fish and aquatic resources | • Cultural resources |
| • Wildlife and botanical resources | • Socioeconomic resources |
| • Wetlands, riparian, and littoral habitat | • Tribal resources |
| • Rare, threatened, and endangered species | • Other resource information |

- b. Please briefly describe the information referenced above and/or list available documents (*additional information may be provided on page 6 of this questionnaire*).

ADF&G has conducted minimum counts of mountain goats in the surrounding mountain complex on Revillagigedo Island, but the data is not specific to the project area. The only fish studies we are aware of took place prior to the previous re-licensing effort 30 years ago.

- c. Please provide referenced document, source website link, or description of where KPU can obtain this information, if available.

Contact me (kevin.keith@alaska.gov) or Ross Dorendorf (ross.dorendorf@alaska.gov) if interested in the mountain goat data.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

- d. Based on the specific resource areas listed in 4a, are you aware of any specific issues related to the identified resource area(s)?

 Yes (*please list specific issues below*) X No (*if no, please go to No. 5*)

Resource Area	Description of Issue

5. If you have additional comments and/or questions regarding the Beaver Falls Project, or the relicensing process, please provide them below.

The Preliminary Information Document describes both rainbow trout and cutthroat trout as having been stocked and currently reproducing naturally in Upper and Lower Silvis Lakes. We are aware of the rainbow trout stocking, but we do not have any records of cutthroat trout as having been stocked nor are we aware of any documentation of cutthroat trout occurring in the Lakes. We would be curious if KPU has or is aware of any evidence of cutthroat trout stocking or occurrence in either lake.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

Additional Information:

From: [Susan Walker - NOAA Federal](#)
To: [Katie Sellers](#)
Subject: Re: Beaver Falls Hydroelectric Project - Information Gathering for Relicensing
Date: Wednesday, March 27, 2019 4:30:32 PM

Katie - I would like to call in to this meeting.

I note that there are no fish above an upper tidal barrier - pinks and chum below, and no agencies except the FS commented on the last license application, and no instream flow license requirements.

There is likely a need for an informal Section 7 consultation for endangered species, and I will check with NMFS Office of Protected Resources about that.

Sue Walker
Fish Biologist, NMFS Hydropower Coordinator
Alaska Region

P.O. Box 21668
709 W. 9th Street
Juneau, Alaska 99802-1668

907-586-7646
FAX: 907- 586-7358

On Wed, Mar 27, 2019 at 4:26 AM Katie Sellers <Katie.Sellers@kleinschmidtgroup.com> wrote:

Morning All – We have received limited feedback regarding preferred dates for an initial stakeholder meeting. If you could please complete the Doodle Poll by this Friday (3/29) or let me know your availability for the second week of April directly via email it would be much appreciated.

We will be offering a conference line during this meeting. If you cannot make it to Ketchikan, but would be able to call in please let me know.

Thank you!

Katie

Katie E. Sellers, M.S.

Regulatory Coordinator



Office: 207-416-1218

www.KleinschmidtGroup.com

*Providing **practical** solutions for **complex** problems affecting energy, water, and the environment*

From: Katie Sellers

Sent: Friday, March 15, 2019 10:07 AM

To: 'comments-alaska-tongass@fs.fed.us' <comments-alaska-tongass@fs.fed.us>; 'mdinsmore@fs.fed.us' <mdinsmore@fs.fed.us>; 'susan.howle@usda.gov' <susan.howle@usda.gov>; 'susan.walker@noaa.gov' <susan.walker@noaa.gov>; 'douglass_cooper@fws.gov' <douglass_cooper@fws.gov>; 'ak_fisheries@fws.gov' <ak_fisheries@fws.gov>; 'kevin.keith@alaska.gov' <kevin.keith@alaska.gov>; 'Gene.McCabe@alaska.gov' <Gene.McCabe@alaska.gov>; 'carl.reese@alaska.gov' <carl.reese@alaska.gov>; 'judy.bittner@alaska.gov' <judy.bittner@alaska.gov>; 'oha.revcomp@alaska.gov' <oha.revcomp@alaska.gov>; 'dnr.pkssoutheast@alaska.gov' <dnr.pkssoutheast@alaska.gov>

Cc: 'Jennifer Holstrom' <JenniferH@City.Ketchikan.Ak.Us>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Jeff Deason <Jeff.Deason@KleinschmidtGroup.com>; Pratt, Jeremy <JPratt@trcsolutions.com>; Andrew Donato <AndrewD@City.Ketchikan.Ak.Us>

Subject: Beaver Falls Hydroelectric Project - Information Gathering for Relicensing

Good Morning,

As Jennifer Holstrom earlier expressed via phone calls, voicemails, and/or emails, The City of Ketchikan, Alaska d/b/a Ketchikan Public Utilities (KPU), with assistance from Kleinschmidt Associates (Kleinschmidt), is beginning the Federal Energy Regulatory Commission (FERC) relicensing process for the 7.1 megawatt Beaver Falls Hydroelectric Project (FERC No. 1922) (Project). The Project consists of two developments (Silvis and Beaver Falls) and is located on Beaver Falls Creek, approximately 6 miles northeast of the City of Ketchikan. The Beaver Falls Project additionally occupies federal lands within Tongass National Forest.

KPU is preparing a Notice of Intent (NOI) to relicense the Project and a Pre-Application Document (PAD) to be filed with the FERC no later than October 31, 2019. The PAD will provide FERC and stakeholders with existing, relevant, and reasonably available

information pertaining to the Project as well as resources within the Project vicinity. As such, KPU is providing this initial stakeholder distribution with the attached Preliminary Information Document (PID) to provide background information on the Beaver Falls Project and high level summaries of known resources. A Stakeholder Questionnaire is additionally attached and is provided to you as a means to identify additional sources of existing, relevant, and reasonable available information pertinent to the Project that is not currently in KPU's possession.

KPU will hold an initial stakeholder meeting in Ketchikan, AK to provide an overview of the Beaver Falls Project, review existing resources, and to identify any potential information gaps/resource issues before finalization of the PAD. KPU would like to schedule this initial stakeholder meeting for the second week in April. A Doodle Poll link is provided below with a list of possible meeting dates. If you could please access the link and identify your preferred dates for this meeting by **Friday March 22, 2019**, it would be much appreciated. We will then select the most preferred date to hold the initial stakeholder meeting and notify this group accordingly.

Doodle Poll Link: <https://doodle.com/poll/irp7s5uegnkvcdde>

In summary, if you could please review the PID, complete and return the Stakeholder Questionnaire, and complete the Doodle Poll, it would be much appreciated.

If you would like to be removed from this distribution list or have updated contact information please let me know.

Thank you in advance for your time,

Katie Sellers

Katie E. Sellers, M.S.

Regulatory Coordinator

Kleinschmidt

Office: 207-416-1218

www.KleinschmidtGroup.com

*Providing **practical** solutions for **complex** problems affecting energy, water, and the environment*

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922) STAKEHOLDER INFORMATION QUESTIONNAIRE

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This Stakeholder Information Questionnaire is being used to help identify sources of existing, relevant, and reasonably available information pertinent to the Project that is not currently in KPU's possession. This information will help to identify any data collection needs or potential resource issues early in the relicensing process. Our intent is to include results of this information request in the PAD.

We respectfully request that you please complete and return this Stakeholder Information Questionnaire to Katie Sellers via email at katie.sellers@kleinschmidtgroup.com **within 2 weeks of receipt**. This will allow for any follow-up contact that may be needed by KPU or Kleinschmidt.

If we do not receive a response within 2 weeks, this will indicate that:

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- unless you are representative of a tribe or federal or state agency, you (and your organization) are not interested in receiving any further correspondence regarding this proceeding and you will be removed from the distribution list.

We greatly appreciate your response and assistance in this effort to identify information resources and interested parties in this proceeding.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922) STAKEHOLDER INFORMATION QUESTIONNAIRE



FIGURE 1 BEAVER FALLS PROJECT LOCATION

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

1. Please provide the following information about the person completing this questionnaire.

Name & Title	Sarah Meiti Review and Compliance Coordinator
Organization	Alaska State Historic Preservation Office Office of History and Archaeology / DNR
Address	550 W. 7th Ave., Suite 1310 Anchorage, AK 99501
Phone	907-269-8720
Email Address	sarah.meiti@alaska.gov

2. Do you or your organization plan to participate in the Beaver Falls Project's relicensing proceeding?

☒ Yes (if yes, please complete information below) ☐ No (if no, please go to No. 3)

Please provide the contact information for the representative(s) of your organization that will be participating in the relicensing process for this Project. *(Additional contacts may be provided on a separate page.)*

Name & Title	same as above
Organization	
Address	
Phone	
Email Address	

3. If you and the entity you represent do not want to receive any further correspondence associated with this proceeding, please indicate so here:

☐ Please remove me and the entity I represent from the mailing list.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

4. Do you or your organization know of any existing, relevant, and reasonably available information that describes the Beaver Falls Project's existing or historical environment (i.e., Project area, adjacent Project vicinity, or areas upstream or downstream of the Project)?

X Yes (if yes, please complete Nos. 4a through 4d) ___ No (if no, please go to No. 5)

- a. If yes, please circle the specific resource area(s) that the information relates to:

- | | |
|--------------------------------------------|-------------------------------|
| • Geology and soils | • Recreation and land use |
| • Water resources | • Aesthetic resources |
| • Fish and aquatic resources | <u>D</u> • Cultural resources |
| • Wildlife and botanical resources | • Socioeconomic resources |
| • Wetlands, riparian, and littoral habitat | • Tribal resources |
| • Rare, threatened, and endangered species | • Other resource information |

- b. Please briefly describe the information referenced above and/or list available documents (additional information may be provided on page 6 of this questionnaire).

our office maintains the ATRS and may have information more current than the previous relicensing effort.

- c. Please provide referenced document, source website link, or description of where KPU can obtain this information, if available.

<https://dnr.alaska.gov/chasecurity/portal>

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

- d. Based on the specific resource areas listed in 4a, are you aware of any specific issues related to the identified resource area(s)?

☒ Yes (please list specific issues below) ☐ No (if no, please go to No. 5)

Resource Area	Description of Issue
Cultural Resources	old data
"	The infrastructure at Silver Lake and/or Beaver Falls creek may be historic and eligible to the NRHP.

5. If you have additional comments and/or questions regarding the Beaver Falls Project, or the relicensing process, please provide them below.

Our office recommends looking at the potential for the Beaver Falls Hydroelectric facilities to be eligible for the National Register of Historic places.

BEAVER FALLS HYDROELECTRIC PROJECT (FERC No. 1922)
STAKEHOLDER INFORMATION QUESTIONNAIRE

Additional Information:



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Anchorage Fish And Wildlife Conservation Office
4700 Blm Road
Anchorage, AK 99507
Phone: (907) 271-2888 Fax: (907) 271-2786



In Reply Refer To:
Consultation Code: 07CAAN00-2019-SLI-0008
Event Code: 07CAAN00-2019-E-00192
Project Name: Beaver Falls Hydroelectric Project

February 01, 2019

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and some candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Please note that candidate species are not included on this list. We encourage you to visit the following website to learn more about candidate species in your area: http://www.fws.gov/alaska/fisheries/fieldoffice/anchorage/endangered/candidate_conservation.htm

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Anchorage Fish And Wildlife Conservation Office

4700 Blm Road

Anchorage, AK 99507

(907) 271-2888

Project Summary

Consultation Code: 07CAAN00-2019-SLI-0008

Event Code: 07CAAN00-2019-E-00192

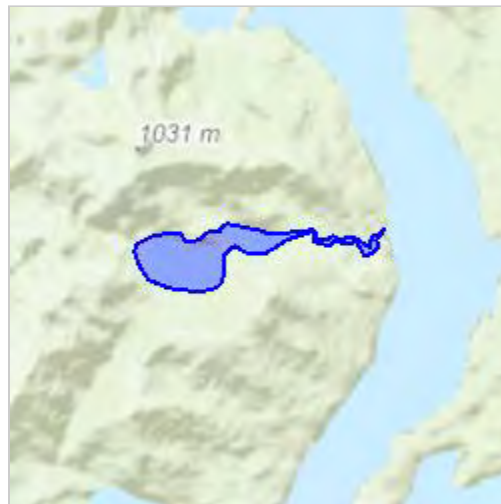
Project Name: Beaver Falls Hydroelectric Project

Project Type: POWER GENERATION

Project Description: FERC Relicensing

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/55.378641875000056N131.53318204548643W>



Counties: Ketchikan Gateway, AK

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

From: [Bergquist, Erin](#)
To: [Katie Sellers](#)
Subject: FW: ACCS Data Request
Date: Friday, June 14, 2019 5:30:55 PM
Attachments: [Cover Letter.docx](#)
[Bergquist_BioticsClip.7z](#)
[SppList_Bergquist.csv](#)
[AKNHP Occurrence Data Field Descriptions.docx](#)
[Ranks.docx](#)

Here is there response. I was able to use Winzip with a trial version to open the zip file.

Erin
(O) 970-484-3263 ext 15971
(M) 970-617-3191

From: Jesika Reimer <jpreimer@alaska.edu>
Sent: Wednesday, June 5, 2019 5:39 PM
To: Bergquist, Erin <EBergquist@trccompanies.com>
Cc: Marcus Geist <mageist@alaska.edu>
Subject: ACCS Data Request

Hi Erin,

Thank you for your inquiry regarding documented wildlife species data for your study area. Please find the attached file called ACCS_Bioticsspecies_TRC.xls, and ACCS_Bioticsspecies_TRC.shp that contain wildlife element occurrences from our Biotics conservation database clipped to your study area. Please keep in mind that this list is limited to occurrence records in currently have in our database and does not represent general ranges of other species that may be in the area.

The attached file, RANKS.doc, explains the “sensitivity” ranking system of the Natural Heritage Programs. This is a two rank system with a G rank for the global status of the species plus an S rank for the state (or sub-national) status of a species. Ranks range from 1 to 5 with 1 indicating a very sensitive species and 5 indicating an abundant and secure species.

The other attached file, AKNHP Occurrence Data Field Descriptions.docx, explains the methodology behind creating element occurrences from observational data and describes the attribute fields within the shapefiles provided.

This is the best information we can provide, but it should not be considered comprehensive. While we strive to populate our database to the best of our abilities, we are not able to capture all information for all species. We hope that this information provided here will help guide you in your decision making processes, but also we advise you to consult with experts in the field who might be able to identify areas or species that we may be lacking information for.

We update the rare and sensitive species database and lists regularly. We cannot guarantee that the information provided here will be valid for more than one year from today’s date. Therefore, if your company is still working in this area next year and information on rare plant/animal occurrences is

needed, we would have to issue a second data request.

Please contact me if you have any further questions.

Sincerely,
Jesika Reimer

--

Wildlife Ecologist
Alaska Center for Conservation Science
University of Alaska Anchorage
3211 Providence Drive,
Anchorage, AK, 99508

EO_ID	SNAME	SCOMNAME	G_RANK	S_RANK	EO_DATA	FIRST_OBS_	LAST_OBS_D	GENERAL_CO	DIRECTIONS	FULL_CITAT
1345	Myodes gapperi soleus	Revillagigedo Island Red-backed Vole	G5T3	S3		1895-09-22	1895-09-22	Entire island considered one EO (EO type=range). Thirteen original specimens collected from Island: 10 at Loring; 3 at mouth of Fish Creek, Ketchikan. COLLECTION INFO - Type: Male, adult, skin and skull, No. 74939, Biological Surveys Collection, United S	Entire island equals one EO, this dot represents a range not a point.	Hall, E.R. and E.L. Cockrum. 1952. Comments on the taxonomy and geographic distribution of North American microtines. Univ. Kansas Mus. Nat. Hist. Publ. 5(23):293-312.
1383	Canis lupus ligoni	ALEXANDER ARCHIPELAGO WOLF	G4T3	S3	High abundance of wolves 1 per 45-65 sq.km. Most abundant area within the Alexander Archipeligo Wolves overall range in Southeast Alaska.; Entire range of Alexander archipeligo wolf includes all of Southeast Alaska from Dixon Entrance to Yakutat Bay including all large islands of the Alexander Archipelago except Admiralty, Baranof, and Chichagof Islands.				East and West of Behm Canal, Southeast, Alaska.; Southeast Alaska.	Wood, R. 1990. Annual survey and inventory report--wolf. Federal aid in wildlife restoration. Alaska Dept. of Fish and Game, Juneau, AK.; Kirchhoff, M.D. 1992. The Alexander Archipelago wolf. Pp. 166-186. In: Suring, L.H., D.C. Crocker-Bedford, R.W. Flynn, C.L. Hale, G.C. Iverson, M.D. Kirchhoff, T.E. Schenck II, L.C. Shea, K. Titus. A strategy for maintaining well-distributed, viable popu
10556	Contopus cooperi	Olive-sided Flycatcher	G4	S4S5B		1972	1972	latlong for individual stops along route were supposed to be available in early 2007--these data not currently available on BBS website		USGS Patuxent Wildlife Research Center. 2006. North American Breeding Bird Survey Internet data set. Available online at: (http://www.pwrc.usgs.gov/bbs/retrieval/).
13006	Megascops kennicottii	WESTERN SCREECH-OWL	G5	S2	7 Western Screech-Owls recorded from 2005-2008.	1986	2008			Global Biodiversity Information Facility (GBIF). 2011. Data provided from GBIF Biodiversity Data Index. <http://www.asia.gbif.net/portal/index.jsp> Accessed March 2011.

From: [Bergquist, Erin](#)
To: [Katie Sellers](#)
Subject: FW: Data Request
Date: Friday, June 14, 2019 5:31:34 PM

Erin
(O) 970-484-3263 ext 15971
(M) 970-617-3191

From: mageist@alaska.edu <mageist@alaska.edu> **On Behalf Of** UAA Alaska Natural Heritage Program
Sent: Friday, May 24, 2019 3:09 PM
To: Bergquist, Erin <EBergquist@trccompanies.com>
Subject: Re: Data Request

Dear Ms. Bergquist,

We have evaluated your area of interest and determined that there are no known rare plant instances mapped within that project area. You will not be charged for the minimal data request processing time. Thank you for your interest in the Alaska Center for Conservation Science's data. Best wishes

Marcus Geist

On Thu, May 23, 2019 at 2:59 PM Bergquist, Erin <EBergquist@trccompanies.com> wrote:

Mr. Geist,
Thanks. The signed acknowledgement form is attached.

For the invoice for the data request, can you send it to the following address and reference the job no below:

Katie Sellers
PO Box 650
141 Main Street
Pittsfield, Maine 04967
Reference Job # 1852010.01

Thanks,
Erin

Erin
(O) 970-484-3263 ext 15971
(M) 970-617-3191

From: mageist@alaska.edu <mageist@alaska.edu> **On Behalf Of** UAA Alaska Natural Heritage Program

Sent: Wednesday, May 15, 2019 12:44 PM

To: Bergquist, Erin <EBergquist@trccompanies.com>

Subject: Data Request

Dear Ms. Bergquist:

You have requested data records and/or a synthesis of information in tabular or spatial format from the Alaska Center of Conservation Science for rare plant occurrence data. We require a signed acknowledgement of appropriate and inappropriate uses of the data. A copy of the acknowledgement is attached to this email.

--

Marcus Geist
Data Manager
Alaska Center for Conservation Science
University of Alaska, Anchorage
3211 Providence Dr.
BMH, 113
Anchorage, Ak 99508
mageist@alaska.edu
(907)786-6385

--

Marcus Geist
Data Manager
Alaska Center for Conservation Science
University of Alaska, Anchorage
3211 Providence Dr.
BMH, 113
Anchorage, Ak 99508
mageist@alaska.edu
(907)786-6385

APPENDIX C

PROJECT LICENSE AND AMENDMENTS

69 FERC 1 62, 113

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Ketchikan Public Utilities

Project No. 1922-008
Alaska

ORDER ISSUING NEW LICENSE
(Major Project)

NOV 07 1994

Ketchikan Public Utilities (KPU) filed a license application under Part I of the Federal Power Act (FPA) for the continued operation and maintenance of the 7.1-megawatt (MW) Beaver Falls Project located on the Beaver Falls Creek in the First Judicial District of Alaska. The project would produce about 46.3 gigawatthours (GWh) of electricity annually. About 80 percent of the project occupies lands of the United States within the Tongass National Forest.

Notice of the application has been published. No motions to intervene were filed. No agency objected to issuance of this license. Comments received from interested agencies and individuals have been fully considered in determining whether or under what circumstances to issue this license.

The Commission's and the U.S. Forest Service's staff (herein to be referred to as staff) issued a draft environmental assessment (EA) for this project on March 28, 1994. The staff analyzed and considered all the comments filed pursuant to the draft EA and issued a final EA on June 27, 1994, which is attached to and made part of this license order. The Commission's staff also prepared a Safety and Design Assessment (S&DA), which is available in the Commission's public file associated with this project.

PROJECT DESCRIPTION

The existing project consists of two separate but interrelated developments:

(A) The Silvis Development, consisting of the 60 foot-high Upper Silvis dam, an 800-foot-long concrete apron spillway channel from Upper Silvis spillway to Lower Silvis Lake, Upper Silvis Lake, Tunnel No. 1, a 375-foot-long steel penstock, the Silvis powerhouse with an installed capacity of 2.1 MW, a channel tailrace about 150 feet long discharging into Lower Silvis Lake, a 2,900-foot-long submarine transmission cable, a 7,100-foot-long aerial transmission line, and other appurtenances.

9411140222

FERC-DOCKETED
NOV - 7 1994

(b) The Beaver Falls Development, consisting of a 32-foot-high dam, a 3-foot-high spillway, a 3-foot-high dam with 6-inch-high flashboards, Lower Silvis Lake, an intake structure, Tunnel No. 2, an above-ground steel penstock continuing through Tunnel No. 3, a 225-foot-long wood stave pipe from Tunnel No. 2 discharging into Beaver Falls Creek just upstream of the diversion dam, a 4,170-foot-long steel penstock from the diversion dam feeding unit 1 (1 MW) at the Beaver Falls powerhouse, the Beaver Falls powerhouse with a total installed capacity of 5 MW, and other appurtenances.

A detailed project description is contained in ordering paragraph B(2).

KPU's PLANS AND CAPABILITIES

KPU's Record as a Licensee

In accordance with Sections 10 and 15 of the FPA, the staff evaluated KPU's record as a licensee for these areas: (1) conservation efforts; (2) compliance history and ability to comply with the new license; (3) safe management, operation, and maintenance of the project; (4) ability to provide efficient and reliable electric service; (5) need for power; (6) transmission line improvements; and (7) project modifications. I accept the staff's findings in each of these areas.

Here are their findings:

1. Section 10(a)(2)(C): Conservation Efforts

The state of Alaska has no regulatory body with specific authority over energy conservation, nor has it promulgated any conservation policies, programs, or plans that would affect KPU.

KPU is a small isolated electric utility and states that as an alternative to new generation resources, it can investigate the possibility of implementing conservation programs to reduce electric consumption of its customers.

KPU cooperates with the Alaska Public Utilities Commission (APUC) by providing to its customers literature and other conservation information supplied by APUC through means of a bill-stuffing.

Therefore, KPU is making a good faith effort to conserve electricity.

2. Sections 15(a)(3)(A) and 15(a)(2)(A): Compliance History and Ability to Comply with the New License

The Commission's staff reviewed KPU's compliance with the terms and conditions of the existing license and found that KPU's overall record of making timely filings and compliance with its license is satisfactory.

Based on past performance, KPU has the ability to comply with terms of the new license.

3. Section 15(a)(2)(B): Safe Management, Operation, and Maintenance of the Project

KPU has installed public warning signs throughout the project. The lake level elevations within the project are monitored by pressure sensitive transducers located in each of the power tunnel intake structures. The structural movements of the dams are monitored at the crests and upstream faces.

There have been no accidents or deaths within the project boundaries with the exception of three lost-time accidents involving employees. One employee received second and third degree electrical burns. One employee slipped on a patch of ice and broke his ankle. Another employee suffered minor injuries caused by a discharge from the water adit valve. These incidents occurred in 1964, 1966, and 1980, respectively.

Since KPU was not at fault when the incidents occurred, the staff finds the project safe for continued use and operation. KPU's relicensing proposal wouldn't adversely affect the project's operation and safety.

Therefore, the project is safe for continued use and operation.

4. Section 15(a)(2)(C): Ability to Provide Efficient and Reliable Electric Service

The Commission's staff examined KPU's record of lost generation due to unscheduled outages and found that the outages have been minimal and lost generation was not significant compared to the total annual generation for this project.

Therefore, KPU is operating in an efficient and reliable manner.

5. Section 15(a)(2)(D): Need for Power

The staff has considered KPU's short- and long-term need for the power, as well as the cost of alternative power if KPU doesn't get a new license for the project.

The staff concludes that: (1) KPU has a need for power in both the short and long term, (2) the project provides a substantial part of KPU's generation needs, and (3) replacing the project's average annual energy production of 46.3 GWh would cost KPU about \$5.8 million annually, or about 121 mills/kilowatt-hour.

KPU uses the entire project output to meet customer demands. The project is KPU's least-cost generation resource and, because of its location in the system, it greatly enhances transmission service reliability.

To meet its other power needs, KPU purchases the power produced at the Alaska Energy Authority's Swan Lake Project. KPU's forecast indicates that, by 1995, demand growth will absorb the entire Swan Lake resource and KPU could become energy deficient at that time.

The power from the project would be useful in continuing to meet a large portion of KPU's short- and long-term projected power need. The project displaces fossil-fueled electric power generation, and thereby, conserves nonrenewable fossil fuels and reduces the emission of noxious byproducts caused by the combustion of fossil fuels.

Therefore, the Beaver Falls Project provides a necessary source of power for KPU.

6. Section 15(a)(2)(E): Transmission Line Improvements

KPU proposes no changes to the existing project transmission system.

The existing transmission system is sufficient, and no changes to the service affected by the project operation would be necessary whether the Commission issues a license for the project or not.

7. Section 15(a)(2)(F): Project Modifications

KPU is not proposing any major modifications to the project.

The Commission's staff looked at the potential for installing more capacity at the site and determined that it is not feasible at this time. Therefore, no other project modifications are necessary.

WATER QUALITY CERTIFICATION

On October 22, 1992, KPU applied for water quality certification for the project to the Alaska Department of

Environmental Conservation (ADEC), as required by Section 401 of the Clean Water Act. 1/ On October 22, 1992, ADEC received KPU's request for certification. Since ADEC didn't act on the request within 1 year from the receipt date, the water quality certificate is deemed waived according to Section 4.38(f)(7)(ii) of the Commission's regulations.

COASTAL ZONE MANAGEMENT PROGRAM

Under Section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), 16 U.S.C. § 1456(3)(A), the Commission cannot issue a license for a project within or affecting a state's coastal zone, unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program (which certification is included in the license application and, at the same time, is filed with the state), or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification.

However, the Coastal Zone Management Act 2/ does not appear to give the state authority to revisit its concurrence once a license has been issued. Furthermore, Section 307(e) 3/ states that nothing in the CZMA shall be construed to diminish federal jurisdiction or as superseding, modifying, or repealing existing laws applicable to the various federal agencies. Under the FPA, the Commission determines whether proposed changes constitute proposed amendments to the license, and therefore, whether a new certification and concurrence is necessary.

Because the project may affect coastal resources, the Alaska Division of Governmental Coordination (DGC) must review the proposed project for consistency with the Alaska Coastal Management Program (ACMP). By letter dated July 15, 1993, DGC concurred that the project is consistent with the ACMP. DGC included the following condition with the concurrence:

If any future changes to the approved project are proposed during operation, KPU must contact the DGC to determine if further review and approval of the revised project is necessary.

This condition would operate to give the state the opportunity to revisit the concurrence regardless of whether the

1/ 33 U.S.C. §1341.

2/ 16 U.S.C. 1451 et seq.

3/ 16 U.S.C. § 1456(e).

proposed changes relate to the ACMP and would give the state authority beyond that provided for in the CZMA. Therefore, this condition will not be included in the license. If changes to the project are proposed, the Commission will determine whether license amendments require new certification of consistency with the ACMP. In the event that DGC disagrees with the Commission's decision on re-certification and believes the proposed changes are not consistent with the ACMP, the controversy shall be resolved in accordance with the procedure specified in Section 930.66 of the CZMA, as amended.

Further, DGC recommended that the Commission should continue to assure public access in the lake areas, and concurred that the powerline design complies with guidelines by the Raptor Research Foundation, Inc. (Olendorff et al. 1981) to prevent potential injury of birds flying in the nearby area. Article 106 requires measures that will enhance public access to the lake areas.

RECOMMENDATIONS OF FISH AND WILDLIFE AGENCIES

Section 10(j)(1) of the FPA requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies submitted pursuant to the Fish and Wildlife Coordination Act, for the protection of, mitigation of adverse impacts to, and enhancement of fish and wildlife. No federal or state fish and wildlife agency recommendations were filed for the project in response to our notice that the application was ready for environmental analysis.

SECTION 4(e) FINDINGS AND CONDITIONS

Section 4(e) of the FPA, requires that Commission licenses for projects located within United States reservations must include all conditions that the Secretary of the department under whose supervision the reservation falls shall deem necessary for the adequate protection and utilization of such reservation. A portion of the Beaver Falls Project is located in the Tongass National Forest, which is under the Forest Service supervision. By letter dated July 8, 1994, the Forest Service submitted its comments on the proposed project and its conditions for inclusion in any license. By letter dated October 31, 1994, it revised its

conditions. 4/ The Forest Service's conditions are included in this license as Articles 101 through 110.

COMPREHENSIVE PLANS

Section 10(a)(2)(A) of the FPA, requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, or conserving waterways affected by the project. Federal and state agencies have filed 15 plans that address various resources in Alaska. Three plans are relevant to this project. 5/ No conflicts were found.

COMPREHENSIVE DEVELOPMENT

Sections 4(e) and 10(a)(1) of the FPA, 16 U.S.C. §§ 797(e) and 803(a)(1) require the Commission, in acting on applications for license, to give equal consideration to the power and

4/ In summary, the Forest Service requires the licensee to:

1. Reserve National Forest System lands management to the Forest Service, obtain Forest Service's written approval for all final project design plans and any project changes and consult with the Forest Service annually about the project (conditions 1, 2, 3, 4);
2. Prepare a cultural resources management plan and a schedule to evaluate the significance of any archeological or historic sites discovered (condition 5);
3. Implement the Recreation Plan filed by KPU, as revised (condition 6); and
4. Ensure proper maintenance of the project premises, remove hazards on the site, ensure the Government use of roads, and indemnify the Government against liabilities for any damage to life or property arising from the occupancy and use of Forest Service's lands. (conditions 7,8,9,10).

5/ (1) Tongass National Forest Land Management Plan, Revision: Proposed Revised Forest Plan, U.S. Forest Service, 1991, Alaska (2) Alaska Outdoor Recreation Plan: 1981-1985, Alaska Department of Natural Resources, Division of Parks, 1981, Juneau, Alaska (3) North American Waterfowl Management Plan, U.S. Fish and Wildlife Service and Canadian Wildlife Service, 1986, Twin Cities, Minnesota.

development purposes and to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses.

The staff evaluated: (1) issuing the license as proposed by KPU with Section 4(e) conditions; (2) issuing the license as proposed by KPU with Sec.4(e) conditions plus additional measures; and (3) denying the license. The staff recommends the second option --the project as proposed by KPU with Sec.4(e) conditions plus additional measures--as the preferred alternative.

Staff's option, includes the following measures to protect, mitigate project impacts to, and enhance environmental resources at the project site:

- Maintain the water use agreement with the Southern Southeast Regional Aquaculture Association, Inc. (SSRAA); 6/
- Prepare a water release plan for the period of time from January 1, 1999, throughout the term of the license, to assure the Beaver Falls Sockeye Hatchery and any other water rights along Beaver Falls Creek are accommodated;
- Upgrade the trailhead sign-in area near the Beaver Falls powerhouse;
- Rehabilitate the picnic area near Lower Silvis dam;
- Upgrade the trail between Upper and Lower Silvis Lakes;
- Install a vehicular bridge near the Silvis powerhouse;
- Amend the project boundary to include the 2,100-foot-long recreation trail right-of-way, that lies largely outside the current project boundary, to ensure its reconstruction and maintenance; and

6/ KPU has an existing agreement with the Southern Southeast Region Aquaculture Association, Inc. to provide water for the operation of the Beaver Falls Sockeye Hatchery until December 31, 1998.

- Prepare a cultural resources management plan and a schedule to evaluate the significance of any archeological or historic sites discovered, and necessary steps to protect the sites.

The proposed measures would not affect the annual generation of the project. However, the recreational enhancement measures would cost about \$165,200 with an additional \$3,500 annual operation and maintenance cost. This translates to a levelized annual cost of about \$20,000.

The staff thinks KPU's proposed recreation plan would provide benefits that are worth their costs since: (1) the project is located close to the city of Ketchikan--relative to other recreational opportunities on the island--and is frequently used by recreationists, and (2) KPU's recreation plan would enhance the Deer Mountain-John Mountain Trail, a component of the National Recreation Trail System.

I believe that the benefits obtained from the measures listed above, justify the cost to KPU. The 7.1-MW project, as conditioned by this license, would continue to economically generate about 46.3 GWh annually. The clean energy that would be produced by the project would continue to displace fossil-fueled power generation, thereby conserving nonrenewable energy resources and reducing the emissions of noxious gases that contribute to atmospheric pollution and global warming.

ANNUAL CHARGES

Approximately, 38.32 acres of land within the boundary of the Beaver Falls Project were originally within the Tongass National Forest but in 1983 were the subject of an interim conveyance, under the Alaska Native Claims Settlement Act, to the Cape Fox Corporation (CFC) for the Native Village of Saxman. ^{7/} However, because the power site reservation for the project under Section 24 of the FPA (16 U.S.C. § 818) predates this conveyance, the acreage continues to be subject to the Section 24 federal reservation. As such, the acreage is subject to annual charges under Section 10(e) of the FPA, 16 U.S.C. § 803(e), for the use of federal reservation lands. ^{8/} Further, the licensee is entitled to continue to use the acreage, without any additional charge, for approved purposes under this license. Section 24

^{7/} Decision issued May 13, 1983, by Bureau of Land Management, Alaska State Office, in Docket Nos. AA 6986-A, AA 6986-B. The conveyance is subject to valid existing rights.

^{8/} Virginia Electric and Power Company, 49 FERC ¶ 61,378 1989.

states, in pertinent part, that any conveyance of federal lands subject to a power site withdrawal is subject to:

a reservation of the rights of the United States or its permittee or licensees to enter upon, occupy, and use any part or all of said lands necessary in the judgment of the Commission, for the purposes of (Part I of the FPA) which shall be expressly reserved in every patent issued for such lands; and no claim or right to compensation shall accrue from the occupation or use of any of said lands for said purposes.

Therefore, annual charges will continue to be assessed for the use, occupancy and enjoyment of the project's entire 544.32 acres of land.

LICENSE TERM

In 1986, the Electric Consumers Protection Act (ECPA) modified Section 15 of the FPA to specify that any license issued shall be for a term that the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years. The Commission's policy establishes 30-year terms for those projects that propose little or no redevelopment, new construction, new capacity or enhancement, 40-year terms for those projects that propose a moderate amount of redevelopment, new capacity or enhancement measures, and 50-year terms for those projects that propose extensive redevelopment, new construction, new capacity or enhancement measures.

Accordingly, because KPU does not propose any changes in the existing project works for the Beaver Falls Project, I am issuing this license for a term of 30 years.

PROJECT RETIREMENT

The Commission has issued a Notice of Inquiry (NOI), dated September 15, 1993, requesting comments that address the decommissioning of licensed hydropower projects. ^{2/} The NOI states that the Commission is not proposing new regulations at this time, but is inviting comments on whether new regulations may be appropriate. Alternatively, the Commission may consider issuing a statement of policy addressing the decommissioning of licensed hydropower projects, or take other measures. The Beaver Falls Project may be affected by future actions that the Commission takes with respect to issues raised in the NOI.

^{2/} Notice of Inquiry, Project Decommissioning at Relicensing, Dockets No. RM93-23-000, September 15, 1993.

Therefore, the license includes Article 203, which reserves authority to the Commission to require the licensee to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project.

By including Article 203, we don't intend to prejudge the outcome of the NOI. We are including the article so that the Commission will be in a position to make any lawful and appropriate changes in the terms and conditions of this license, which is being issued during the pendency of the NOI, based on the final outcome of that proceeding.

SUMMARY OF FINDINGS

Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the attached EA. Issuance of the license is not a major federal action significantly affecting the quality of the human environment.

The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the S&DA.

I conclude that the Beaver Falls Project does not conflict with any planned or authorized development, and is best adapted to the comprehensive development of the Beaver Falls River for beneficial public use.

THE DIRECTOR ORDERS:

(A) This license is issued to Ketchikan Public Utilities (licensee) for a period of 30 years, effective the first day of the month in which it is issued, to operate and maintain the Beaver Falls Project. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, as shown on exhibits G-1 through G-4 (FERC Drawing Numbers 110 through 113) of the application.

(2) The project consists of two separate but interrelated developments:

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(A) The Silvis Development consists of: (1) a 60-foot-high, 135-foot-long Upper Silvis dam (concrete-face rockfilled structure); (2) an 8-foot-high, 800-foot-long concrete apron spillway channel from Upper Silvis spillway to Lower Silvis Lake; (3) a reservoir--Upper Silvis Lake--with a surface area of about 300 acres and gross storage capacity of about 38,000 acre-feet at elevation 1,154 feet above mean sea level (msl); (4) a 7-foot-high, 980-foot-long, 5-foot-wide underground Tunnel No. 1; (5) a 375-foot-long, 36-inch-diameter steel penstock--Penstock No. 1 originating from the outlet of Tunnel No. 1; (6) the Silvis powerhouse containing one 2.1-MW unit; (7) a trapezoidal-shaped channel tailrace about 150 feet long discharging into Lower Silvis Lake; (8) a 2,900-foot-long, 5-kilovolt (kV) submarine cable beneath Lower Silvis Lake and a 7,100-foot-long, 34.5-kV aerial transmission line; and (9) other appurtenances.

(B) The Beaver Falls Development consists of: (1) a 32-foot-high, 140-foot-long Lower Silvis dam (concrete-face rockfilled structure); (2) a 3-foot-high, 140-foot-long mass concrete spillway; (3) a 3-foot-high, 40-foot-long mass concrete Beaver Falls Creek diversion dam, with 6-inch-high flashboards; (4) a reservoir--Lower Silvis Lake--with a surface area of about 67.5 acres and gross storage capacity of about 8,052 acre-feet at elevation 827 feet msl; (5) an intake structure at Lower Silvis Lake; (6) a 3,800-foot-long, 7-foot-high, and 7-foot-wide underground Tunnel No. 2; (7) a 3,600-foot-long, 3.5 feet in diameter above-ground steel penstock--Penstock No. 2 originating from the outlet of Tunnel No. 2 continuing through Tunnel No. 3 and feeding units 3 and 4 (2,000-kW each) at the Beaver Falls powerhouse; (8) a 4,170-foot-long, 28 inches in diameter above-ground steel penstock--Penstock No. 3 originating from the Beaver Falls Creek diversion dam and feeding unit 1 (1,000-kW) at the Beaver Falls powerhouse; (9) a 225-foot-long, 20 inches in diameter wood stave pipe from Tunnel No. 2 discharging into Beaver Falls Creek just upstream of the Beaver Falls Creek diversion dam; (10) the Beaver Falls powerhouse containing four generating units with a total installed capacity of 5 MW (unit 2 has been decommissioned); and (11) other appurtenances.

The project works generally described above are more specifically described in exhibit A of the license application and shown by exhibit F:

<u>Exhibit F-</u>	<u>FERC No. 1922-</u>	<u>Showing</u>
F-1	101	Upper and Lower Silvis Dams
F-2	102	Upper Silvis Spillway - plan, profile, and sections
F-2.1	114	Silvis Development - power conduit profile

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F-3	103	Silvis Powerhouse - plans and sections
F-4	104	Beaver Falls Power Plant - power conduit profile
F-5	105	Beaver Falls Powerhouse - area plan
F-6	106	Beaver Falls Powerhouse - plan and section
F-7	107	Beaver Falls Substation - elevations
F-8	108	One line electrical diagram
F-9	109	Beaver Falls Creek Diversion Dam

(3) All of the structures, fixtures, equipment, or facilities used to operate or maintain the project and located within the project boundary, all portable property that may be employed in connection with the project and located within or outside the project boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibits A, F and G of the license application are approved and made part of the license.

(D) This license is subject to the articles set forth in Form L-1 (October 1975) entitled "Terms and Conditions of License for Constructed Major Project Affecting Lands of the United States" and the following additional articles:

Article 101. Notwithstanding the authorizations granted under the Federal Power Act, National Forest System lands within the project boundaries shall be managed by the Forest Service under the laws, rules, and regulations applicable to the National Forest System.

Article 102. Before any construction of the project occurs on National Forest System lands, the licensee shall obtain the prior written approval of the Forest Service for all final design plans for project components when the Forest Service deems as affection or potentially affection National Forest System resources. The Forest Service may require adjustments in final plans and facility locations to preclude or mitigate impacts and to assure that the project is compatible with on-the-ground conditions. Should such necessary adjustments be deemed by the Forest Service, the Commission or the licensee shall follow the schedules and procedures for design review and approval specified in the Forest Service special use authorization. As part of such prior written approval, the Forest Service may require

adjustments in final plans and facility locations to prelude or mitigate impacts and to assure that the project is compatible with on-the-ground conditions. Should such necessary adjustments be deemed by the Forest Service, the Commission, or the licensee to be a substantial change, the licensee shall follow the procedures outlined in Article 2 [Form L-1] of the license. Any changes to the license made for any reason pursuant to Article 2 [Form L-1] or Article 3 [Form L-1] shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to section 4(e) of the Federal Power Act.

Article 103. Notwithstanding any license authorization to make changes to the project, the licensee shall get written approval from the Forest Service prior to making any changes in the location of any constructed project features or facilities, or in the uses of project lands and waters, or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the Forest Service, and at least 60 days prior to initiation of any such changes or departure, the licensee shall file a report with the Commission describing the changes, the reason for the changes and showing the approval of the Forest Service for such changes. The licensee shall file an exact copy of the report with the Forest Service at the same time it is filed with the Commission. This article does not relieve the licensee from the amendment of other requirements of Article 2 [Form L-1] or Article 3 [Form L-1] of this license.

Article 104. Each year during the 60 days preceding the anniversary date of the license, the licensee shall consult with the Forest Service with regard to measures needed to ensure protection and development of the natural resource values of the project area. Within 60 days following such consultation, the licensee shall file with the Commission evidence of the consultation with any recommendations made by the Forest Service. The Commission reserves the right, after notice and opportunity for hearing, to require changes in the project and its operation that may be necessary to accomplish natural resource protection.

Article 105. If archeological or historic sites are discovered during project operation, the licensee shall: (1) cease operations and consult with the Alaska State Historic Preservation Office (SHPO) and the Forest Service; (2) prepare a cultural resources management plan and a schedule to evaluate the significance of the sites and to avoid or mitigate any impacts to any sites found eligible for inclusion in the National Register of Historic Places; (3) base the plan on the recommendations of the SHPO and the Secretary on the Interior's Guidelines for Archeology and Historic Preservation; (4) file the plan for Commission approval, together with the written recommendations of the SHPO on the plan; and (5) take the necessary steps to protect

the discovered sites from further impact until notified by the Commission that all of these requirements have been satisfied.

The Commission may require a cultural resources survey and changes to the cultural resources management plan based on the filing. The licensee shall not implement a cultural resources management plan or begin any land clearing or land disturbing activities in the vicinity of any discovered sites until informed by the Commission that the requirements of this provision have been fulfilled.

Article 106. The licensee shall implement the Recreation Plan filed on November 19, 1992, as amended by the (1) additional information filing of July, 1992, (2) official transcript of the Beaver Falls Hydroelectric Scoping Meeting on November 18, 1993, and (3) December 7, 1993, comments of Ketchikan Public Utilities on the scoping document for the Beaver Falls Project.

The recreational enhancements shall consist of: (1) upgrading the trailhead area near the Beaver Falls powerhouse by providing the following enhancements: (a) a gate and lock on the access road, (b) new access interpretive and parking signs, (c) a new trail register, and (d) a Forest Service approved toilet; (2) rehabilitating and maintaining the picnic area near Lower Silvis dam by: (a) repairing or replacing the picnic tables, fire rings, garbage cans, and stairways of Lower Silvis dam, and (b) installing an additional picnic table that will be wheelchair accessible; (3) reconstructing and maintaining the 2,100-foot-long trail segment, including stairs and handrails, between Upper and Lower Silvis Lakes; and (4) installing a bridge near the Silvis powerhouse.

The licensee shall complete construction of the recreational facilities stated above within two years from the issuance of the license. Within 90 days after finishing construction, the licensee shall file for Commission approval revised exhibit A, F, and G to describe the recreational facilities as-built. The Commission and the Forest Service reserve the right to require changes to the recreational plan.

Article 107. The licensee shall maintain the improvements and premises to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the authorized officer. For example, trash, debris, unusable equipment, etc., will be disposed of separately; other material will be stacked, stored neatly, or within buildings.

Article 108. Avalanches, rising waters, high winds, limbs or trees, and other hazards are natural phenomena in the forest that present risks to the licensee's property that the licensee

assumes. The licensee is responsible for inspecting the site, right-of-way, and the immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and, after securing permission from the Forest Service, is responsible for removing such hazards.

Article 109. The United States shall have unrestricted use of the said right-of-way and any road constructed thereon for all purposes deemed necessary or desirable in conjunction with the protection, administration, management, and utilization of federal lands or resources and alone shall have the right to extent rights privileges for use of the right-of-way and road thereon to states and local subdivisions thereof, as well as to other uses, including members of the public, except contractors, agents and employees of the licensee; provided, that the agency having jurisdiction shall control such use so as not unreasonably to interfere with use of the road by the licensee or cause the licensee to bear a share of the cost of maintenance greater than the licensee's use bears to all use of the road.

Article 110. The licensee shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of National Forest lands under this license.

Article 201. The licensee shall pay the United States the following annual charges as determined by the Commission, effective the first day of the month in which this license is issued for the purposes of:

a. Reimbursing the United States for the cost of administration of Part I of the Act. The authorized installed capacity for that purpose is 9,470 horsepower.

b. Recompensing the United States for the use, occupancy and enjoyment of 544.32 acres of its lands, other than for transmission line right-of-way.

Article 202. Pursuant to Section 10(d) of the Act, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. The licensee shall set aside in a project amortization reserve account at the end of each fiscal year one half of the project surplus earnings, if any, in excess of the specified rate of return per annum on the net investment. To the extent that there is a deficiency of project earnings below the specified

rate of return per annum for any fiscal year, the licensee shall deduct the amount of that deficiency from the amount of any surplus earnings subsequently accumulated, until absorbed. The licensee shall set aside one-half of the remaining surplus earnings, if any, cumulatively computed, in the project amortization reserve account. The licensee shall maintain the amounts established in the project amortization reserved account until further order of the Commission.

The specified reasonable rate of return used in computing amortization reserves shall be calculated annually based on current capital ratios developed from an average of 13 monthly balances of amounts properly includible in the licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10 year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 203. The Commission reserves authority, in the context of a rulemaking proceeding or a proceeding specific to this license, to require the licensee at any time to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project. The terms of this article shall be effective unless the Commission, in Docket No. RM93-23, finds that the Commission lacks statutory authority to require such actions, or otherwise determines that the article should be rescinded.

Article 204. (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 type of use and occupancy of project lands and water 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 and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the 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-kV or less); and (8) water intake or pumping facilities that do not extract more than one 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. If no conveyance was made during the prior calendar year, the licensee shall so inform the Commission and the Regional Director in writing no later than January 31 of each year.

(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 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 one-half 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 five 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:

(1) 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.

(2) 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 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 401. The licensee shall permit the diversion of 5.6 cubic feet per second of water from the project penstock, in accordance with the agreement dated November 9, 1992, between the licensee, city of Ketchikan, and the Southern Southeast Regional Aquaculture Association, Incorporated (SSRAA), for operating the Beaver Falls Sockeye Hatchery facilities. The licensee shall file a plan with the Commission, for approval, by December 31, 1997, to specify how the water rights to the hatchery would be maintained after the agreement expires on December 31, 1998, and throughout the remainder of the license term.

The plan, at a minimum, shall include:

(a) a description of the water rights, including the amount needed for operation of the hatchery in the future, and

(b) a description of how the project would accommodate any other water rights that might be affected by continued future project operation.

The licensee shall prepare the plan after consultation with the Forest Service, the SSRAA, and the Alaska Department of Fish and Game.

The licensee shall include with the plan documentation of consultation, copies of the consulted entities comments and recommendations, on the completed plan after it has been prepared and provided to the entities consulted, and specific descriptions of how their comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the consulted entities to comment and to make recommendations before filing the plan with the Commission. If the licensee doesn't adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the licensee's plan. Upon Commission approval, the licensee shall carry-out the recommendations, including any changes required by the Commission.

Article 402. Within 6 months from the date of issuance of this order, the licensee shall file for Commission approval a revised exhibit G to include within the project boundary the lands needed for reconstruction, use, and maintenance of the segment of trail between Upper and Lower Silvis Lakes described in Article 105.

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.

(E) 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 the Commission filing. Proof of service on these entities must accompany the filing with the Commission.

(F) This order is issued under authority delegated to the Director and constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of this order, pursuant to 18 C.F.R. § 385.713. The filing of a request for rehearing does not operate as a stay of the effective date of this order 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 shall constitute acceptance of this order.



Fred E. Springer
Director, Office of
Hydropower Licensing

Document Content(s)

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87 FERC ¶ 62,107

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Ketchikan Public Utilities)

Project No. 1922-025

ORDER AMENDING LICENSE

APR 27 1999

On February 12, 1999, Ketchikan Public Utilities (KPU), licensee for the Beaver Falls project, FERC No. 1922, filed an application to amend its license. 1/ The filing was made pursuant to a settlement agreement reached between Cape Fox Corporation (CFC), a Native Village Corporation, and KPU. The project is located on the Beaver Falls Creek in the first Judicial District of Alaska. About 80 percent of the project occupies lands of the United States within the Tongass National Forest.

BACKGROUND

On November 7, 1994, the Commission issued a new license to KPU. Standard Article 5 requires the licensee to obtain the right to use project lands within 5 years from the date of the licensing order. CFC had acquired ownership of 38.32 acres of land, 19.61 acres of which had been reserved for the Beaver Falls Project. A settlement agreement has been reached between CFC and KPU allowing KPU the right to use CFC lands for project purposes. The agreement involves including a small amount of additional land within the project boundary and excluding of a small amount of non-essential land from the project. The net effect of the agreement will increase 1.21 acres of non-federal lands within the project boundary.

REVIEW

The settlement between CFC and KPU was necessary to allow KPU to meet the requirements license article 5. The effect of the boundary changes is minor and will have no adverse effect on the environment or the operation of the project. It will be necessary for the licensee to file revised exhibit F and G drawings to show the changes proposed in its application for amendment.

The Director Orders:

(A) The license of the Beaver Falls Project, FERC No. 1922, is amended as described in Paragraph B below, effective the issuance date of this order.

1/ 69 FERC ¶62,113, Order Issuing New License (Major Project)

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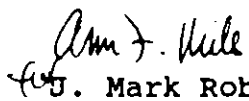
Project No. 1922-025

-2-

(B) The project boundary is revised as described and shown in the Application for Amendment of License filed February 12, 1999.

(C) Within 90 days from the issuance date of this order, the licensee shall file revised exhibit F and G drawings showing the revised project boundary.

(D) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. § 385.713.


J. Mark Robinson
Director
Division of Licensing and Compliance

162 FERC ¶ 62,169

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

Ketchikan Public Utilities

Project No. 1922-050

**ORDER AMENDING LICENSE, REVISING PROJECT BOUNDARY, APPROVING
REVISED EXHIBIT G DRAWINGS, AND REVISING ANNUAL CHARGES**

(Issued March 19, 2018)

1. On October 10, 2017, and as supplemented on March 6, 2018, Ketchikan Public Utilities (KPU), licensee for the Beaver Falls Hydroelectric Project No. 1922, filed an application to amend its project boundary and correct federal acreage and its annual transmission line charges, pursuant to Article 201 of the project license.¹ The project is located on the Beaver Falls Creek in the First Judicial District of Alaska. The project occupies, in part, federal lands within the Tongass National Forest.

Background

2. Article 201 of the license states that the licensee must pay the United States annual charges as determined by the Commission, effective the first day of the month in which the license is issued for the purposes of: a) reimbursing the United States for the cost of administration of Part I of the Act. The authorized installed capacity for that purpose is 9,470 horsepower, b) recompensing the United States for the use, occupancy and enjoyment of 544.32 acres of its lands,² other than for transmission line right-of-way.

¹ *Ketchikan Public Utilities*, 69 FERC ¶ 62,113 (1994).

² This included 38.32 acres of land within the boundary of the Beaver Falls Project, which were originally within the Tongass National Forest but in 1983 were the subject of an interim conveyance, under the Alaska Native Claims Settlement Act, to the Cap Fox Corporation for the Native Village of Saxman. However, this acreage continued to be subject to the Section 24 federal reservation and, therefore, subject to annual charges under Section 10(e) of the FPA, 16 U.S.C. § 803(e), for the use of federal reservation lands, because the power site reservation for the project under Section 24 of the FPA (16 U.S.C. § 818) predates the conveyance.

3. Subsequently, in a request for rehearing of the license order, the Cap Fox Corporation (CFC) for the Native Village of Saxman petitioned the Commission to have the 38.32 acres removed from the annual charges calculation since it argued that their Section 24 reservation should not be applied to those acres since a goal of the land transfer, under the Alaska Native Claims Settlement Act, was to make sure the economic benefit of the transfer would accrue to the appropriate native corporation. The Commission issued an order granting rehearing in 1996 and ruled that the total acreages subject to annual charges should be reduced by 38.32 acres (resulting in 506 acres of federal lands), since the Commission concluded (in another case subsequent to the issuance of the 1994 license) that congress intended that the Native organizations, rather than the United States, be the ones to benefit economically from the use of the land. Therefore, ordering paragraph (B) of the Commission's Order Granting Intervention and Rehearing amended Article 201(b) of the license to read: Recompensing the United States for the use, occupancy, and enjoyment of 506 acres of its lands, other than for transmission line right-of-way.³ The licensee and CFC then executed a settlement agreement, in 2000, in which the project lands selected by CFC under the Alaska Native Claims Settlement Act would be conveyed back to the licensee (with easements for CFC developments near the project).

Proposed Amendment

4. In its amendment application, KPU requests amending its project boundary due to updated mapping techniques and more precise delineation of the boundary. KPU proposes to re-align the boundary around Upper Silvis Lake to 1,154 feet from its previous contour of 1,170 feet (the boundary around Lower Silvis Lake would remain at the 827-foot contour). KPU also requests to include portions of an access road and the recreational hiking trail between Lower and Upper Silvis Lakes within the project boundary. Therefore KPU requests to revise the exhibit G's⁴ to reflect these boundary changes and to amend license Article 201 to reflect the updated acreage. KPU further requests to remove the annual transmission line charges of 121.927 acres from the annual charge statement since these transmission lines are not within the project boundary, nor are they described the current Exhibit A of the project. Finally, KPU states that the Commission's annual charges statements never reflected the new lowered acreage (506 acres) approved under the 1996 Order. Therefore, KPU states that it has been overpaying

³ *Ketchikan Public Utilities*, 74 FERC ¶ 61,051 (1996).

⁴ The exhibit G's filed on March 6, 2018 update the exhibits filed with the amendment application on October 10, 2017. The updated exhibit filing distinguishes acreages of non-federal lands within the project boundary that are also subject to power site reservation Under Section 24 of the Federal Power Act.

for 38.32 acres in the intervening years, and requests that the Commission correct the annual charge statements to reflect the new acreage.

Review

Exhibit G Drawings

5. We reviewed and georeferenced the revised Exhibit G drawings filed on March 6, 2018, and found them to be in agreement with our current mapping requirements. The licensee updated the contour line around Upper Silvis Lake which, as the licensee proposed, was re-aligned to 1,154 feet from its previous contour of 1,170 feet.⁵ In addition, we determined that the revised Exhibit G-3 combines two existing drawings: G-3 (P-1922-121) and G-4 (P-1922-124). We will, therefore, delete Exhibit G-4 from the license, as directed in ordering paragraph (A). The licensee also added portions of an existing access road and the recreational hiking trail between Lower and Upper Silvis Lakes, required by the project's Recreation Plan, into the project boundary.⁶ The revised Exhibit G-1, G-2, and G-3 drawings filed on March 6, 2018, conform to the Commission's rules and regulations and should be approved. We are assigning new Exhibit G drawing numbers and requiring the licensee to file the approved exhibit drawings and associated geographic information system data in electronic file format, as directed in ordering paragraph (B) below.

Annual Charges

6. The licensee included a breakdown of the amount of federal land that the project occupies on its drawings and provided supporting discussion in its filing that accompanies the drawings. The exhibits identify the project occupies a total of 500 acres of federal land, of which 21.6 acres are subject to Section 24 of the Federal Power Act. The licensee also included, in its applications, copies of land transfer documents that show the United States transferred federal lands to CFC, as well the deeds showing the land transfer from CFC to KPU (through a settlement agreement). Based on this information, we find that the land ownership has been properly documented and totaled. Therefore, Ordering paragraph (C) of this order amends Article 201 of the license to

⁵ Upper Silvis Lake normal maximum reservoir elevation is at 1,154 feet. The licensee matched the boundary with the visibly discernable vegetation line at the maximum normal water surface elevation for each development and determined the more appropriate project boundary.

⁶ Article 106 of the project's license requires the licensee to implement the Recreation Plan filed on November 19, 1992, and to adhere to several provisions also outlined by the article.

reflect the updated federal lands acreage. Because the Commission no longer assesses annual charges for Section 24 lands,⁷ the revision to the acreage in Article 201 only reflects the project boundary occupying federal lands within the Tongass National Forest. However, the licensee should still identify the Section 24 lands on the geographic information system federal land shapefile required in ordering paragraph (B).

Transmission Lines

7. The licensee identified 121.927 acres related to transmission line annual charges that should be removed from the annual charges statement since they are not within the project boundary, nor are they described in the approved Exhibit A. The licensee states that the project boundary concludes at the substation, from which point the transmission and distribution line crosses over State of Alaska, CFC, and other non-federal entity lands. The licensee included with its filing correspondence from the Commission to KPU regarding Primary Line Determination (April 30, 1990 letter). The licensee, therefore, states that the primary transmission line for this project terminates at the substation (which is within the project boundary). Based on our review of the filed exhibit drawings, we verified that the project boundary concludes at the substation and that transmission lines outside of the project boundary are not subject to annual charges.⁸ Therefore, Ordering paragraph (C) of this order amends Article 201 to remove transmission line charges outside of the project boundary.

Miscellaneous (Exhibit A)

8. During our review of the Exhibit G drawings, we identified that the approved Exhibit A for the project requires revision to reflect the accurate amount of federal lands occupied by the project consistent with the Exhibit G drawings. Ordering paragraph (D) of this order requires the licensee, within 45 days from the issuance date of this order, to file a revised Exhibit A, in its entirety, in two forms:

- a) A strike through format, i.e. strikethrough items to be removed and underline or bold items to be added to the exhibit, and
- b) A final, clean copy incorporating the changes (i.e. without the strikethrough, underline, and bold notations).

⁷ See *Annual Update to Fee Schedule*, 142 FERC ¶ 62,166 (February 27, 2013), and *Power Site Reservations Fees Group*, 142 FERC ¶ 61,196, at P 7 (2013).

⁸ The original license included a transmission line from Beaver Falls to Herring Cove. The Commission's April 30, 1990 letter advised the licensee that the primary line for the project did not include this segment.

We encourage the licensee to take this opportunity to review the entire Exhibit A and the project description in ordering paragraph (B)(2) of the license, to ensure they accurately describe the project.

The Director orders:

(A) Ketchikan Public Utilities' filing of revised Exhibit G drawings, on March 6, 2018, for the Beaver Falls Hydroelectric Project No. 1922, are approved as shown in the table below. The superseded exhibits are deleted from the license. Furthermore, Exhibit G-4 is deleted from the license.

Exhibit	FERC Drawing No.	Superseded FERC Drawing No.	Drawing Title
G-1	P-1922-125	P-1922-119	Project Boundary
G-2	P-1922-126	P-1922-120	Project Boundary
G-3	P-1922-127	P-1922-121 and P-1922-124	Project Boundary

(B) Within 45 days of the date of issuance of this order, as directed below, the licensee must file two sets of the approved exhibit drawings, form FERC-587, and geographic information system (GIS) data in electronic file format on compact disks with the Secretary of the Commission, ATTN: OEP/DHAC.

a) Digital images of the approved exhibit drawings must be prepared in electronic format. Prior to preparing each digital image, the FERC Project-Drawing Number (*i.e.*, P-1922-125, P-1922-126, and P-1922-127) must be shown in the margin below the title block of the approved drawing. Each drawing must be a separate electronic file, and the file name must include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this order, and file extension in the following format [P-1922-125, G-1, Project Boundary, MM-DD-YYYY.TIF].

Each Exhibit G drawing that includes the project boundary must contain a minimum of three known reference points (*i.e.*, latitude and longitude coordinates or state plane coordinates). The points must be arranged in a triangular format for GIS georeferencing the project boundary drawing to the polygon data, and must be based on a standard map coordinate system. The spatial reference for the drawing (*i.e.*, map projection, map datum, and units of measurement) must be identified on the drawing and each reference point must be labeled. In addition, a registered land surveyor must stamp each project boundary drawing. All digital images of the exhibit drawings must meet the following format specification:

IMAGERY:	black & white raster file
FILE TYPE:	Tagged Image File Format, (TIFF) CCITT Group 4 (also known as T.6 coding scheme)
RESOLUTION:	300 dots per inch (dpi) desired, (200 dpi minimum)
SIZE FORMAT:	22" x 34" (minimum), 24" x 36" (maximum)
FILE SIZE:	less than 1 megabyte desired

A third set (Exhibit G only) and a copy of Form FERC-587 must be filed with the Bureau of Land Management office at the following address:

State Director
Bureau of Land Management
Division of Alaska Lands
222 W 7th Ave Stop 13
Anchorage, AK 99513-7504
ATTN: FERC Withdrawal Recordation

Form FERC-587 is available through the Commission's website at the following URL: <http://www.ferc.gov/docs-filing/forms/form-587/form-587.pdf>. Although instruction no. 3 requires microfilm copies of the project boundary maps in aperture card format, electronic copies that meet the digital specifications in this ordering paragraph should be substituted. If the FERC-587 cannot be downloaded from the Internet, a hard copy may be obtained by mailing a request to the Secretary of the Commission.

b) Project boundary GIS data shall be in a georeferenced electronic file format (such as ArcGIS shapefiles, GeoMedia files, MapInfo files, or a similar GIS format). The filing must include both polygon data and all reference points shown on the individual project boundary drawings. An electronic boundary polygon data file(s) is required for each project development. Depending on the electronic file format, the polygon and point data can be included in single files with multiple layers. The georeferenced electronic boundary data file must be positionally accurate to ± 40 feet in order to comply with National Map Accuracy Standards for maps at a 1:24,000 scale. The file name(s) must include: FERC Project Number, data description, date of this order, and file extension in the following format [P-1922, boundary polygon/or point data, MM-DD-YYYY.SHP]. The filing must be accompanied by a separate text file describing the spatial reference for the georeferenced data: map projection used (*i.e.*, UTM, State Plane, Decimal Degrees, etc.), the map datum (*i.e.*, North American 27, North American 83, etc.), and the units of measurement (*i.e.*, feet, meters, miles, etc.). The text file name must include: FERC Project Number, data description, date of this order, and file extension in the following format [P-1922, project boundary metadata, MM-DD-YYYY.TXT].

In addition, for those projects that occupy federal lands, a separate georeferenced polygon file(s) is required that identifies transmission line acreage and non-transmission line acreage affecting federal lands for the purpose of meeting the requirements of 18 C.F.R. §11.2. The file(s) must also identify each federal owner (*e.g.*, Bureau of Land Management, Forest Service, U.S. Army Corps of Engineers, etc.), land identification (*e.g.*, forest name, Section 24 lands, national park name, etc.), and federal acreage affected by the project boundary. Depending on the georeferenced electronic file format, the polygon, point, and federal lands data can be included in a single file with multiple layers.

(C) This order revises Article 201 of the license read as follows:

Article 201. Annual Charges. The licensee shall pay the United States annual charges, effective the first day of the month in which the license is issued, and as determined in accordance with the provisions of the Commission's regulations in effect from time to time, for the purposes of:

- (a) Reimbursing the United States for the cost of administration of Part I of the Federal Power Act. The authorized installed capacity for that purpose is 9,470 horsepower.
- (b) Recompensing the United States for the use, occupancy, and enjoyment of 478.4 acres of its lands, including those for transmission line right-of-way. In addition, the project occupies 21.6 acres of lands that are identified as section 24 lands. Under the Commission's policy currently in effect, the Commission no longer assesses an annual charge for section 24 lands.

(D) Within 45 days from the issuance date of this order, the licensee must file a revised Exhibit A, in its entirety, in two forms:

- (a) A strike through format, i.e. strikethrough items to be removed and underline or bold items to be added to the exhibit, and
- (b) A final, clean copy incorporating the changes (i.e. without the strikethrough, underline, and bold notations).

We encourage the licensee to take this opportunity to review the entire Exhibit A, and the project description in ordering paragraph (B)(2) of the license, to ensure they accurately describe the project.

(E) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 825*l* (2012), and the Commission's regulations at 18 C.F.R. § 385.713 (2017). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

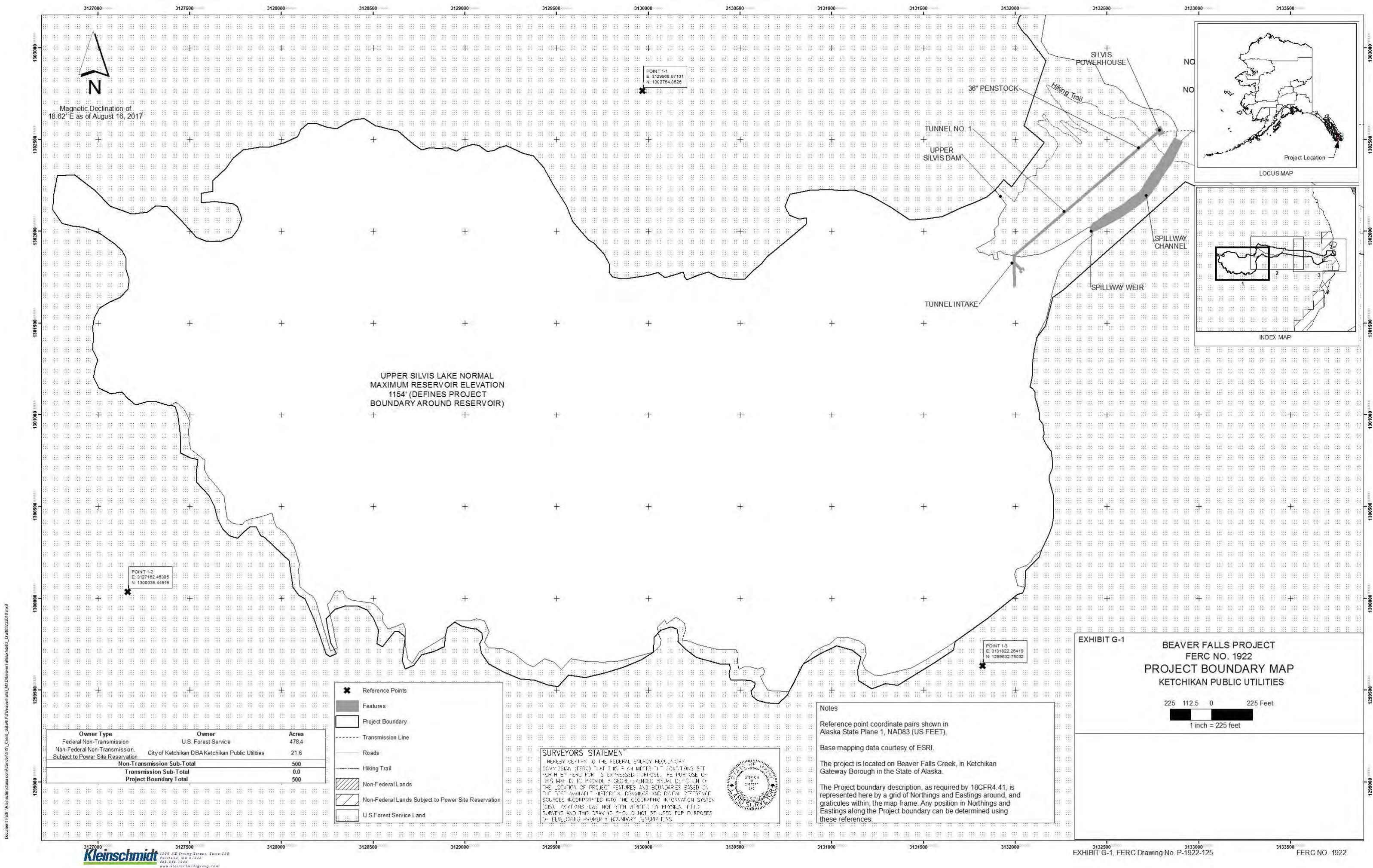
Kelly Houff
Chief, Engineering Resources Branch
Division of Hydropower Administration
and Compliance

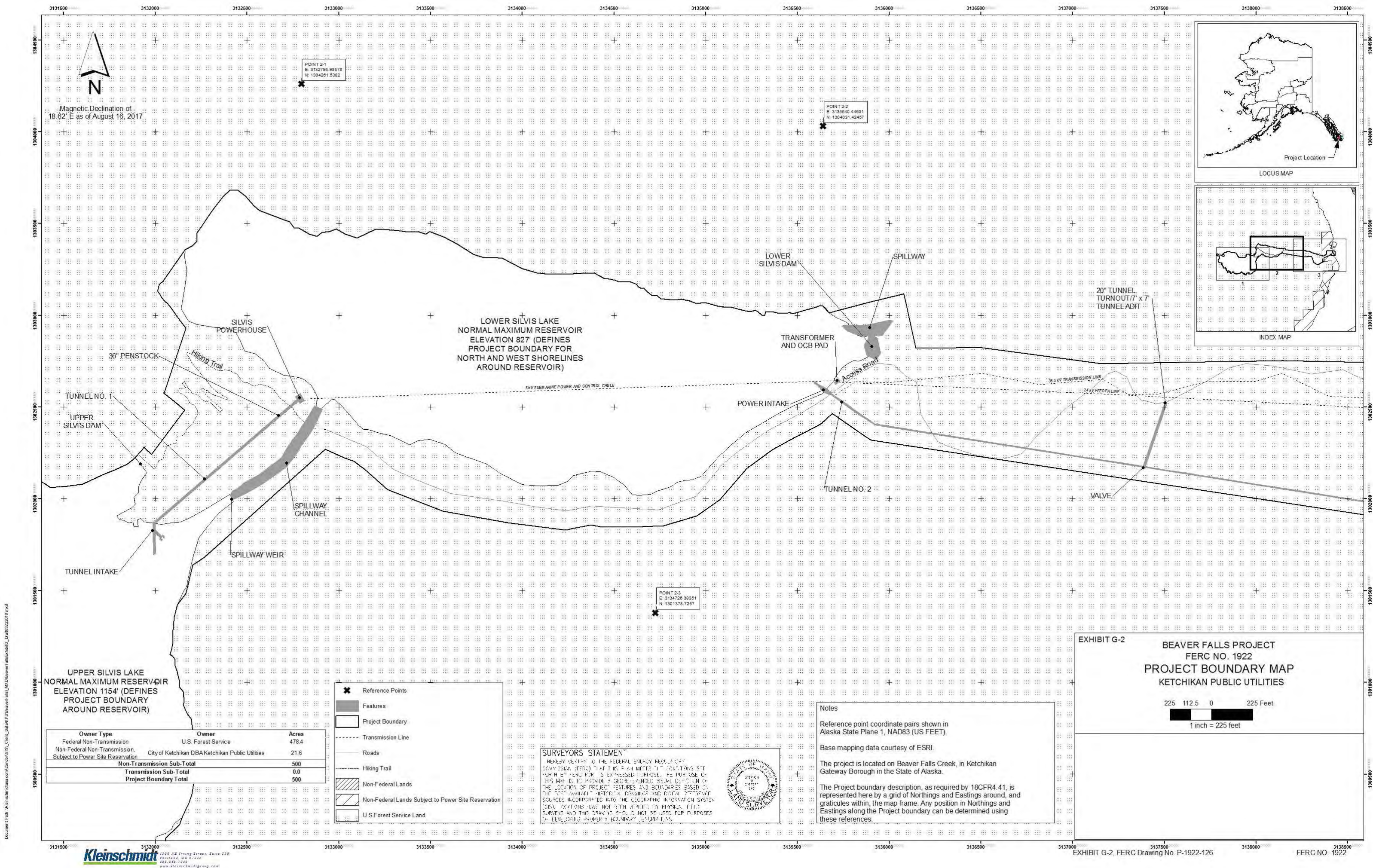
Document Content(s)

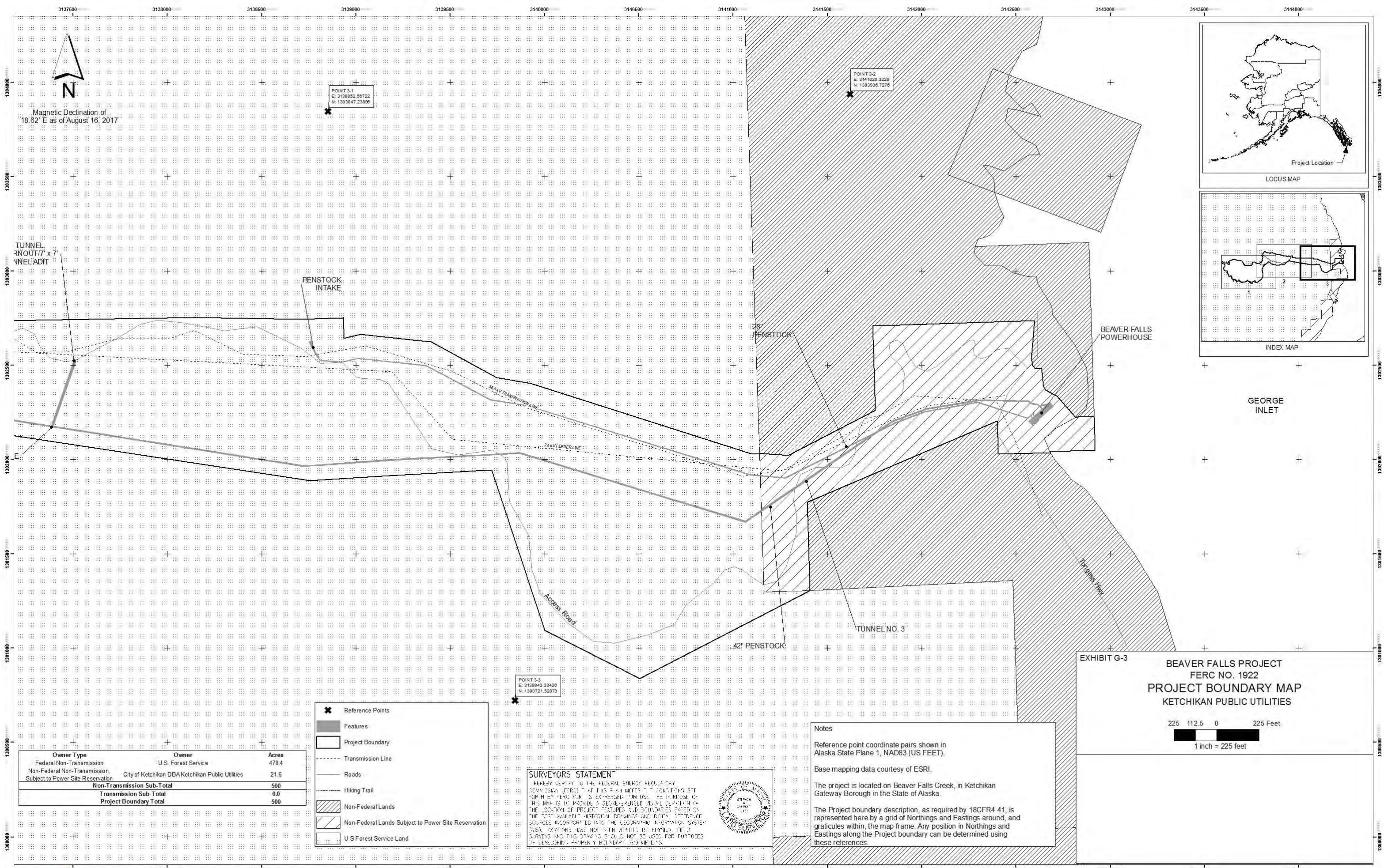
P-1922-050 Order.DOCX.....1-8

APPENDIX D

**EXHIBIT G DRAWINGS
PROJECT BOUNDARY**







Magnetic Declination of
18.62° E as of August 16, 2017

POINT 3-1
E: 3138852.56722
N: 1303847.23896

POINT 3-2
E: 3141620.3229
N: 1303836.7276

POINT 3-3
E: 3138843.33426
N: 1300721.52873

TUNNEL
RNOOUT/7' x 7'
NNEL ADIT

PENSTOCK
INTAKE

28" PENSTOCK

BEAVER FALLS
POWERHOUSE

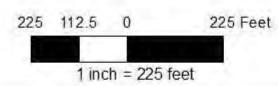
GEORGE
INLET

Access Road

42" PENSTOCK

TUNNEL NO. 3

EXHIBIT G-3
BEAVER FALLS PROJECT
FERC NO. 1922
PROJECT BOUNDARY MAP
KETCHIKAN PUBLIC UTILITIES



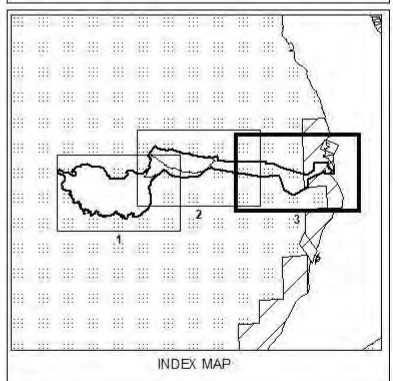
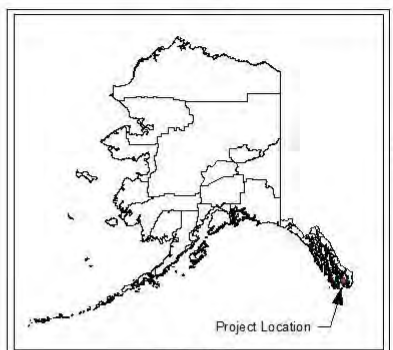
Owner Type	Owner	Acres
Federal Non-Transmission	U.S. Forest Service	478.4
Non-Federal Non-Transmission, Subject to Power Site Reservation	City of Ketchikan DBA Ketchikan Public Utilities	21.6
Non-Transmission Sub-Total		500
Transmission Sub-Total		0.0
Project Boundary Total		500

- Reference Points
- Features
- Project Boundary
- Transmission Line
- Roads
- Hiking Trail
- Non-Federal Lands
- Non-Federal Lands Subject to Power Site Reservation
- U.S. Forest Service Land

SURVEYORS STATEMENT
HEREBY CERTIFY TO THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) THAT THIS PLAN AND THE LOCATIONS SET FORTH BY FERC FOR THE BEAVER FALLS PROJECT ARE THE PROPERTY OF KLEINSCHMIDT & ASSOCIATES, INC. (K&A) AND ARE NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF K&A. THE LOCATION OF PROJECT FEATURES AND SOURCES BASED ON THE 1983 AVAILABLE AERIAL PHOTOGRAPHS AND SURVEY DATA NOT SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS) COORDINATES HAVE NOT BEEN ADJUSTED TO PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.



Notes
Reference point coordinate pairs shown in Alaska State Plane 1, NAD83 (US FEET).
Base mapping data courtesy of ESRI.
The project is located on Beaver Falls Creek, in Ketchikan Gateway Borough in the State of Alaska.
The Project boundary description, as required by 18CFR4.41, is represented here by a grid of Northings and Eastings around, and graticules within, the map frame. Any position in Northings and Eastings along the Project boundary can be determined using these references.



APPENDIX E

CEII MATERIALS

**THIS MATERIAL IS CRITICAL ENERGY INFRASTRUCTURE INFORMATION (CEII).
MEMBERS OF THE PUBLIC MAY OBTAIN NONPUBLIC OR PRIVILEGED
INFORMATION BY SUBMITTING A FREEDOM OF INFORMATION ACT (FOIA)
REQUEST.**

APPENDIX F

FLOW DURATION CURVES

BEAVER FALLS CREEK PROJECT

DURATION OF INFLOW TO LOWER SILVIS LAKE

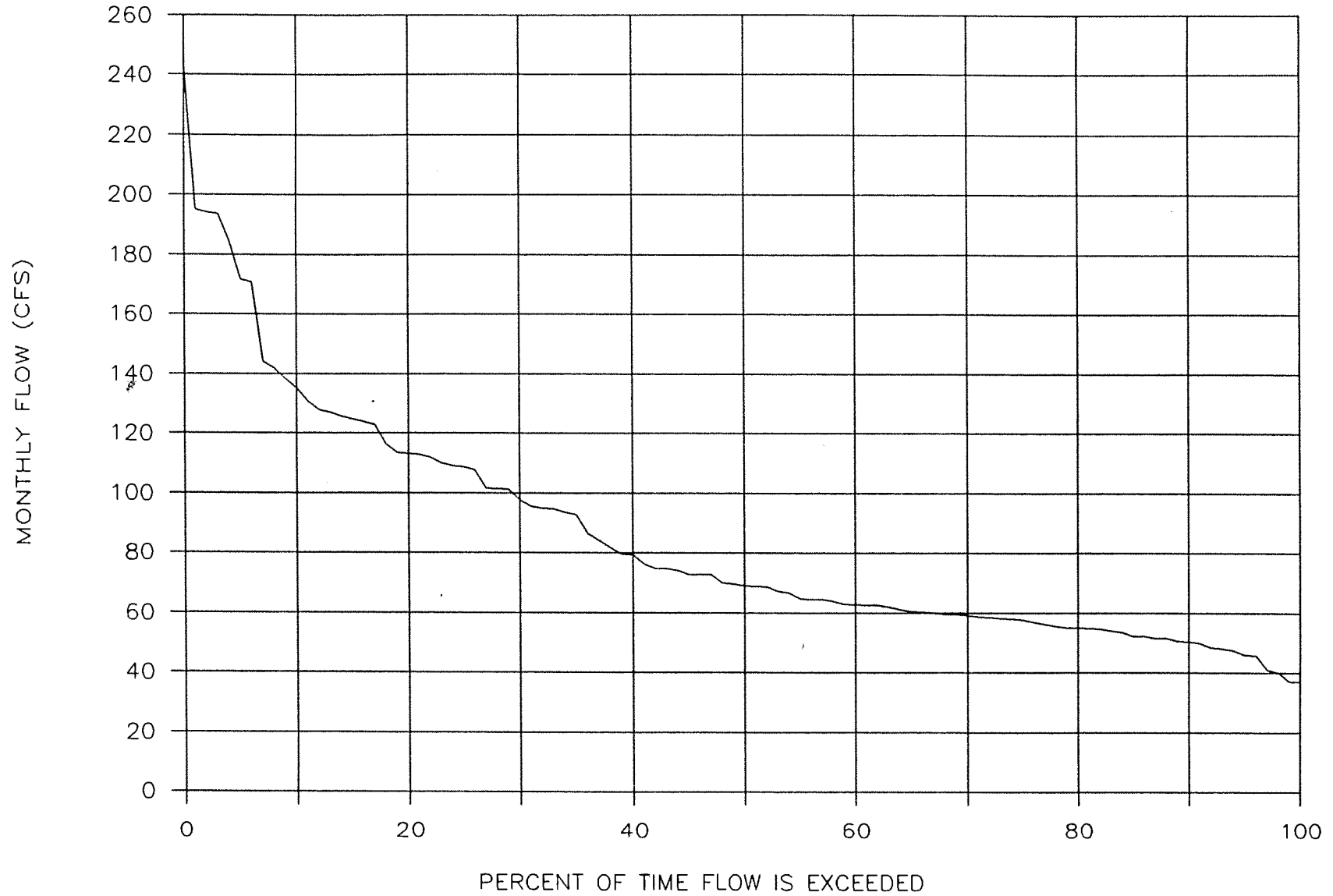


FIGURE 11-1