

**Cultural Resources Study Plan  
Cascade Creek Hydroelectric Project  
(FERC No. 12495-002)**

Submitted to

Cascade Creek LLC

Submitted by



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# 1.0 Introduction

In February 2008, the Federal Energy Regulatory Commission (FERC) in Washington D.C., issued to Cascade Creek Limited Liability Corporation (CCLLC) a Preliminary Permit (Permit) for the Cascade Creek Hydroelectric Project (FERC No. 12495-002, Project). This cultural resources study plan addresses the Swan Lake/Cascade Creek and associated facilities Project and is based on Project details provided in Scoping Document 1 (Cascade Creek 2009) prepared by CCLLC.

The current operational proposal does not include a storage dam; the current proposal is to draw water from Swan Lake in such a way as to minimize lake level fluctuations, with final drawdown prescriptions to be determined based on further economic and environmental considerations. The proposed Project consists of an intake structure at Swan Lake, a power conduit consisting mostly of tunnels, and a steel penstock leading to a powerhouse located above tidewater on Thomas Bay. An operators' house would be built south of the powerhouse. Transmission of electricity would occur either by overhead transmission around Thomas Bay or through a submarine cable across Thomas Bay, then an overhead transmission line across Point Agassiz Peninsula, through another submarine cable across Frederick Sound, and again by overhead transmission south of Petersburg to an existing substation at Scow Bay (Figure 1).

During the initial consultation and scoping phases of the Project, stakeholders, including entities representing the State of Alaska, the U.S. government, and Alaska Native entities, indicated concern for potential Project effects on cultural resources stemming from land disturbances related to Project construction and operation. This study plan responds to study requests made during the scoping process, while outlining work to comply with federal laws and regulations.

Cultural resource data gathering and field surveys discussed in this plan will be used by the FERC and state and federal resource agencies to help evaluate and resolve impacts of the Project prior to issuance of the Project license.

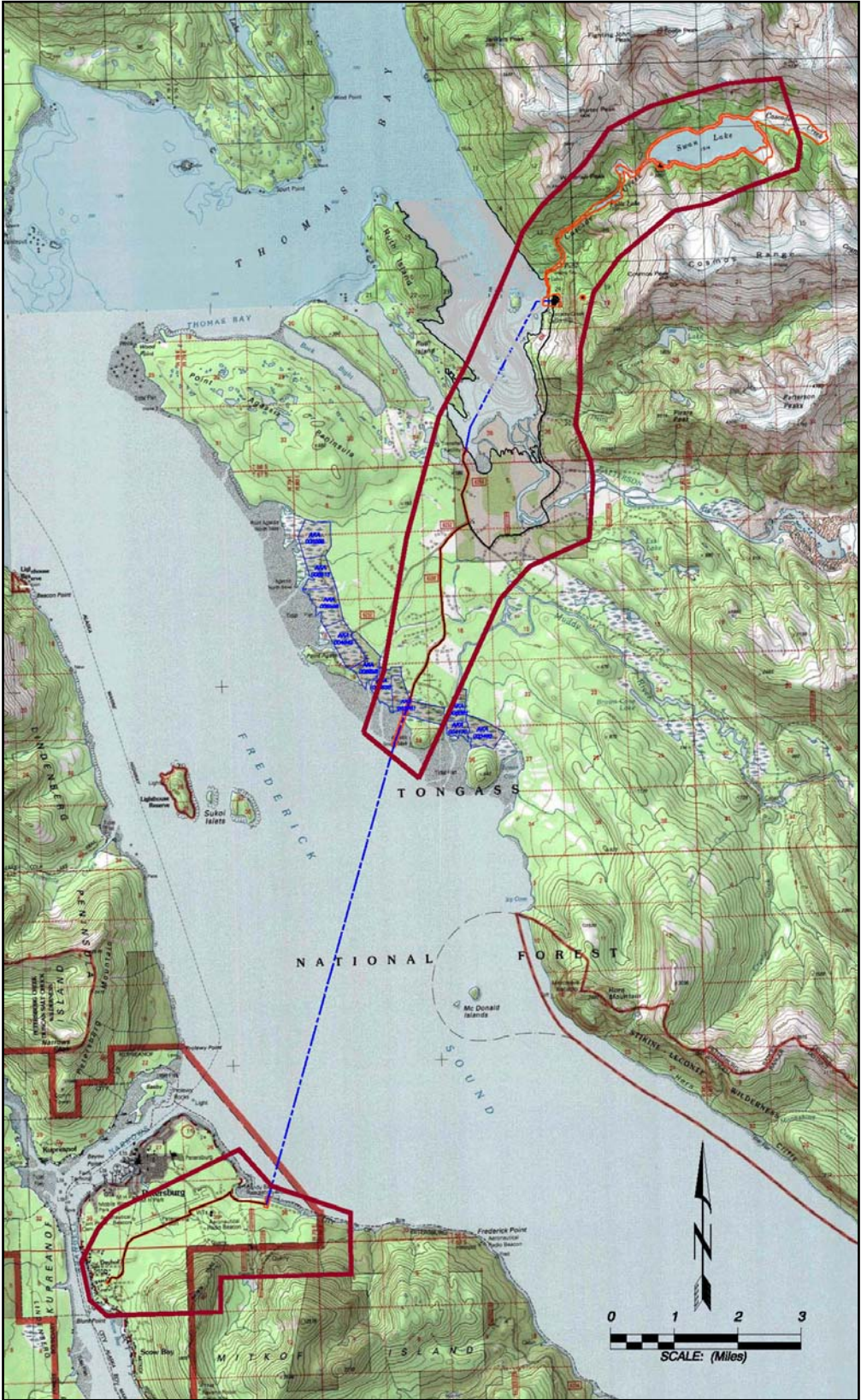


Figure 1. Map showing the Proposed Cascade Creek Hydroelectric Project.

## 2.0 Proposed Cultural Resources Studies

### 2.1 General

For projects such as the current one, the FERC requires compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA). The NHPA requires federal agencies to consider the effects of their undertakings on archaeological, historical, or cultural properties that are listed or eligible for listing in the National Register of Historic Places. Much of the proposed project lies on U.S. Forest Service lands. As such, the methods proposed for this study generally follow the “Tongass National Forest Standards and Guidelines” and the “Second Amended Programmatic Agreement among the USDA Forest Service, Alaska Region, the Advisory Council on Historic Preservation, and the Alaska State Historic Preservation Officer” dating to 2002. The inventory described here would provide cultural resources clearance for the project as part of the NEPA process, and as per forest-wide standards and guidelines (USDA Forest Service 1997:4-15).

Cultural or heritage resources, which include prehistoric and historic-period archaeological sites, historical buildings and structures, and traditional cultural properties (places that are important to communities such as Alaska Natives but which may not have material remains), may occur within the Cascade Creek Project area. On behalf of CCLLC, HRA proposes to implement both archaeological and historical (primarily viewshed) surveys within an Area of Potential Effects (APE) to document the presence of historic properties. This will provide a baseline on which to evaluate Project-related effects.

Cascade Creek Project cultural resource studies will comprise two primary efforts: 1) consultation and literature search, and 2) archaeological and historic field studies, as described in detail below. The overall focus of the proposed study is to conduct inventory for heritage resources and attempt to document native use of the area. CCLLC has hired HRA as their qualified cultural resources contractor to conduct both phases simultaneously, to the extent feasible.

### 2.2 Determination of the Area of Potential Effects

Before either of the two main tasks is begun, the contractor, in association with CCLLC and Project stakeholders will determine an Area of Potential Effects (APE) relative to proposed land disturbances, including construction and operation of generating facilities, access roads, transmission lines, and clearings. The APE will take into consideration direct, indirect, temporary, and cumulative effects to potential historic properties. The APE will generally delineate the boundaries of the field studies.

For the purposes of this study plan, CCLLC proposes that the APE encompass the areas proposed to be impacted in Scoping Document 1 (Cascade Creek 2009). Acreage estimates for the different facilities are included in the scoping document. The shoreline of Swan Lake is included to approximately 1 meter above the normal high pool level (to encompass the upper limit of the proposed 10-foot maximum lake fluctuation level described in the scoping document). For the proposed linear features, including the transmission lines and access roads,

an APE for archaeological sites of approximately 30 meters (about 100 feet) wide will be inventoried. This is currently the maximum width of the proposed right-of-way, which will follow existing Forest Service roads for the majority of the length. The proposed disturbance area for the powerhouse, residence, dock, and trench for the submarine cable is about 300 meters (1,000 feet) north-south by about 150 (500 feet) meters east-west. Disturbance areas for the remaining submarine cable trenches are anticipated to be about 60 meters (200 feet) by 60 meters (200 feet) on Thomas Bay and either side of Frederick sound. The tunnel from the lake outlet to the powerhouse and the route(s) of the submarine transmission line are included in the APE, but will be excluded from survey because the effects will be underground and not expected to impact any historic properties.

## 2.3 Literature and Information Review

### 2.3.1 Literature Review

Preliminary research in the Alaska Heritage Resources Survey (AHRS) records indicates the presence of a number of cultural resources in the vicinity of the APE (whether any of these resources are actually located within the APE is as yet unknown because the formal APE has yet to be delineated). Margan Allyn Grover reported the following:

In 1976, four points between Wood Point and Icy Cove were examined, in addition to Cascade Creek, Spray Island, Ruth Island, Porter Cove, and several other coastal areas. This survey recorded culturally modified trees and eight petroglyphs. Only three of these petroglyphs have been relocated. A survey in 1978 examined Ruth Island and the mouth of Cascade Creek, where two possible canoe landings were reported. In 1981, the beach between Porter Cove and Cascade Creek were examined. Culturally modified trees and a cabin (SUM-031) were reported near the mouth of the creek (USDA-FS 1997). Several surveys of the Cascade Creek trail were conducted in the 1990s. Culturally modified trees and an historic period cabin (SUM-033) were recorded near the mouth of Cascade Creek, and eighteen sites of structural remains were reported along the trail (USDA-FS 1991, 1992). As part of a timber sale in 1997, archaeologists surveyed several areas around Thomas Bay and Agassiz Peninsula. They reported fourteen sites, including a modern cabin, an historic trail, an historic mine with associated structures, six precontact midden sites, two petroglyph sites, culturally modified trees and a rock alignment (USDA-FS 1997). [Grover 2010:4]

The known sites have been recorded on AHRS forms and have been assigned site numbers within that system. Based on this preliminary research, HRA anticipates that additional petroglyphs, middens, culturally modified trees, canoe runs or landings, cabins, mines, and historic artifact scatters or dumps might be present in the APE.

As the cultural resources contractor, HRA will conduct additional research in available cultural and historical resources literature, including, but not limited to:

- Updated research in the AHRS records and atlases at the Office of History and Archaeology (OHA; aka the State Historic Preservation Office [SHPO]), Anchorage, Alaska, as necessary.
- USFS records and atlases, Petersburg Ranger District, Petersburg, Alaska.

- Petersburg Indian Association and Wrangell Cooperative Association records.
- Available academic reports. Specifically in support of ethnographic inventory, CCLC's contractor will review *Haa Aaní, Our Land: Tlingit and Haida Land Rights and Use* (Goldschmidt and Haas 1998), *Native Cemetery and Historic Sites of Southeast Alaska* (Sealaska Corporation 1975), and *Tongass National Forest Cultural Resource Overview* (Arndt et al. 1987).
- An online search for ship wrecks at <http://www.mms.gov/alaska/ref/ships/shipwr/shiplist.asp>.
- Land Status and Use Records and Master Title Plats from the Alaska State Office of the USDI Bureau of Land Management, through their Spatial Data Management System (SDMS) and their Alaska Case Retrieval Enterprise System (ACRES) website (<http://www.sdms.ak.blm.gov/acres/.htm>) as a review for historic activity.

### 2.3.2 Consultation with Native Alaskan Representatives.

In compliance with the NHPA, HRA will contact the Petersburg Indian Association (PIA), the Wrangell Cooperative Association (WCA), Kake Tribal Corporation (KTC), and the Organized Village of Kake (OVK) and attempt to meet to record any concerns and/or information regarding traditional use areas within the APE. Related to this, it is expected that the USDA Forest Service, Tongass National Forest, will determine that ethnographic research for the APE must be conducted and the Project APE must be inventoried and evaluated for the presence of heritage/cultural resources and, if present, determine if they are eligible for inclusion in the National Register of Historic Places (National Register). John Autrey, Tongass National Forest Tribal Government Relations Specialist, will be consulted regarding specific names of local tribal members who might have knowledge of use of the area. Consultation with PIA, WCA, KTC, and OVK will attempt to address this as well.

## 2.4 Field Surveys

At this time the cultural resource inventory work may be conducted under the Special Use Permit issued to CCLLC. However, if an Organic Act permit, an Antiquities Act permit, or an Archaeological Resources Protection Act (ARPA) permit is required, HRA will prepare the appropriate application. Field studies will document cultural resources potentially affected by Project activities within the APE. A determination of eligibility for listing in the National Register of Historic Places will be made for any resources located in the APE. The cultural resource inventory will be conducted following the predictive model developed by the Tongass National Forest and incorporated into the Second Amended Programmatic Agreement with the Advisory Council on Historic Preservation and the Alaska State Historic Preservation Office (Programmatic Agreement 2002). Within the APE, field studies will address the Programmatic Agreement's definitions of sensitivity zones (Appendix E), which are as follows:

1. High sensitivity zones for cultural resources on the Tongass National Forest and immediately adjacent lands include:
  - a. All land between lower water and 100 feet of elevation above mean high water, with no consideration of slope.
  - b. Areas of former lode and placer mining activity.

- c. River valleys and lake and river systems providing passes or portages across larger land masses.
  - d. Lake and stream systems containing, or known to have contained, anadromous fish runs; includes focus on barrier falls locations in such systems.
  - e. Elevated/fossil marine, river, and lake terrace systems.
  - f. Caves and rockshelters, areas of karst landforms, and igneous rock formations known for caves and rockshelters.
  - g. Areas associated with myths and legends such as traditional cultural properties or cultural landscapes.
  - h. Known sources of potential raw materials (obsidian sources; exceptional concentrations of cedars, etc.).
  - i. Alpine areas if ethnographic or historic evidence or previous surveys conducted nearby indicate cultural use.
  - j. Other areas identified through oral history research/sources.
2. Low sensitivity zone:
- a. The low sensitivity zone includes all land not relegated to the high sensitivity zone.

Under this model, most of the APE will be in the high sensitivity zone, with the exception of the slope between the lake and the powerhouse and portions of the transmission line south of Petersburg. Based on recent Forest Service studies, special attention will also be given to any terraces located at about 18 meters (60 feet) elevation. Regarding survey strategies, Appendix E also specifies that sensitivity zones be inventoried for cultural resources as follows:

- 1. High sensitivity zone.
  - a. Intensive survey of all locations of direct, indirect, and cumulative impact in the undertaking's area of potential effect.
  - b. Intensive survey of a sample of the high sensitivity zone outside the undertaking's area of potential effect, but within the larger project area; location and acreage surveyed is to be determined on a case-by-case basis.
  - c. Monitor a sample of all direct impact areas during and/or after the actual ground disturbance. Impact areas to be monitored will be determined on a case-by-case basis.
- 2. Low sensitivity zone.
  - a. Intensive survey of a sample of the locations of direct, indirect, and cumulative impact in the area of potential impacts; location and acreage surveyed is to be determined on a case-by-case basis.
  - b. Post-disturbance monitoring of a sample of all areas of ground disturbance. The locations and acreage sampled will be determined on a case-by-case basis.

Based on the above guidelines, field inventory will occur in areas in the APE considered to have a high probability of containing cultural resources, or high sensitivity zones, including the alternative access and transmission line routes. The acreage of such survey areas is difficult to calculate since much of it is narrow and linear. Using maps for tracking the boundaries of the APE, the areas of the intake facility, powerhouse, operators' houses, access roads and bridges, transmission lines, tailrace, and construction staging areas will be surveyed intensively through pedestrian survey and surface/duff scrapes and soil auger probes and shovel tests, where appropriate. Survey of the shoreline of Swan Lake will focus on landforms at water level that are level or of low slope; steep bedrock and boulder fields or talus will not be surveyed on foot.

HRA will attempt to inventory along Cascade Creek, but the steepness of the drainage suggests there are few if any high sensitivity landforms, and thick brush in most places restricts access and visibility. Fieldwork will also occur in a sample of the APE lands in the low probability, or low sensitivity zone, category.

Based on previous experience on the Tongass National Forest, standard survey methods will include transect intervals no greater than 20 meters apart and 2.5-centimeter-diameter soil auger probes spaced at 25 to 50-meter intervals in high probability areas where subsurface soil exposures are lacking. Shovel tests are also planned along any elevated terraces and at appropriate locations within identified cultural resource sites to obtain information for evaluation of National Register eligibility. Shovel tests of 0.5-meter square will be excavated in 10-centimeter increments, with excavated matrix screened or troweled for cultural material, which will be collected. The field team will excavate shovel tests to a minimum depth of 0.5 meter unless they encounter sterile deposits or material that cannot be penetrated. Excavators will collect materials such as charcoal, wood, shell, or bone, which may be suitable for radiocarbon dating and any lithic material. In addition, shovel test forms will be completed and stratigraphic profiles will be drawn of at least one shovel test at each site tested. In consultation with the USFS District Archaeologist, as many as two wooden stakes (if present) will be collected for radiocarbon dating purposes from any fish weirs located, which may not be subjected to subsurface testing.

The fieldwork will be recorded with daily survey notes, digital photographs, GPS location data, and appropriate resource forms. Sites, isolated artifacts, lithic source areas, culturally modified trees, and other relevant information will be accurately located on copies of available aerial photographs and U.S. Geological Survey (USGS) 15-minute quadrangle maps or more detailed project maps.

Upon identification of archaeological material, the field crew will place temporary flagging at the location of diagnostic artifacts or ecofacts and flag the apparent perimeter of the deposit. Such flagging will be removed upon completion of site recording. If feasible, a permanent natural feature such as a rock outcrop will be used as a datum for mapping the site, features and artifacts; otherwise tubular pieces of PVC will be used. The datum will be described and plotted on a site sketch map.

Sketch maps of cultural sites discovered will be drawn to scale, based on compass bearings and measured dimensions. The sketch map will include the location of cultural and topographic features, areas of artifact concentration, location of diagnostic artifacts, and overall site conditions. If conditions allow, GPS points will be collected for sites and features.

In addition to mapping and recording of cultural remains, factors of environmental setting will be recorded, especially noting vegetation, water resources, topography, and any natural phenomena that may have been influential in selecting the particular location. The recording procedures employed will be designed to document, to the fullest extent feasible, the observable cultural and related natural phenomena.

The recording procedures employed by the archaeological team will also be used for recording historic sites. Building or foundation dimensions will be paced or measured and their various exterior elevations will be photographed.

Cultural properties will be photographed with a digital camera and electronic copies of exposures will be made available to CCLLC and the Project stakeholders, as appropriate without

violating restrictions on confidential site location information. In addition to overview photographs, photographic documentation of relevant features, both cultural and natural, will be provided. Each exposure will be recorded on a photo data sheet denoting exposure number, date, site number, feature, location, and depth (if applicable).

Previously recorded resources will be updated if there are any observed changes since their last recording. When analyzed, the data collected at the sites will allow the cultural resource specialists to make a recommendation of eligibility for the National Register for each property. Properties recommended as National Register eligible will also be evaluated in terms of effects or potential effects of the proposed activities. HRA will make recommendations for how to avoid or mitigate identified effects to eligible resources.

#### **2.4.1 Quality Assurance/Quality Control**

The cultural resources team will follow several procedures to ensure quality control. As mentioned, crew members and the crew leader will use standard forms developed by the Forest Service, as well as AHRS cards, for recording information on survey tracts and cultural resources. The crew leader will review work as it is completed and the principal investigator will review data forms for each survey area to identify information that appears to be incomplete or inaccurate. This procedure will enable the field team to correct the forms as needed before they leave the field.

### **2.5 Reporting**

HRA will prepare a brief summary report of the pre-field findings, including the results of the update of background and records research, ethnographic research and interviews and any recommended additions to the APE or field studies that may result, mapping of sensitivity zones for use during the field surveys, and a final Project APE definition and related consultation outcome seeking concurrence. In addition, draft Forest Service and State of Alaska permit applications will be submitted as appendices to the pre-field summary report, if required. The document will be submitted to CCLLC for review and comment. After addressing any comments the document will then be submitted to archaeologists at the Petersburg Ranger District and the FERC.

Following completion of the field studies and analysis of the data and materials collected, HRA will prepare a professional technical report. The technical report will discuss the methods and results of the cultural resource assessment, using maps, tables, and photographs where necessary. A second volume of the report will contain completed AHRS cards, Tongass Site Inventory Records, maps, and data sheets for each site, plus copies of any other applicable maps, that will only be submitted to AHRS and the Forest Archaeologist.

### **2.6 Study and Report Schedule**

Pre-field studies (i.e., background research, ethnographic research and interviews, APE definition and consultation, mapping of sensitivity zones for field surveys, permit applications [if required]) will commence in late summer of 2010 and a draft summary report produced by the end of 2010 for review and comment by the Project stakeholders. A final version of the summary

report, together with a final study plan and appropriate permit application(s), will be completed in spring 2011.

The cultural resources field studies will commence in summer 2011, pending agency concurrence on the APE and receipt of any USFS or State of Alaska permits. Field surveys will be completed before weather limits access to Swan Lake.

The draft technical report will be submitted for review in late fall 2011, and the final report, assuming prompt review by the agency stakeholders, should be available in early winter.

### 3.0 References Cited

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