

BLUE LAKE HYDROELECTRIC PROJECT
FERC No. 2230

USDA FOREST SERVICE
COMMENTS AND STUDY REQUESTS

to

INITIAL CONSULTATION DOCUMENT
For AMENDMENT of EXISTING FERC LICENSE
March 2008

July 2008

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Part 1 – Related Plans and Forest Service Involvement

I Applicable Comprehensive Plans, Laws and Orders

2008 Tongass Land and Resource Management Plan (TLRMP)

The entire project, except a portion of the transmission line, lies within the boundaries of the Tongass National Forest. The City and Borough of Sitka (CBS) owns much of the land the physical project encompasses. The reservoir, Sawmill Creek and portions of the transmission lines are currently under the jurisdiction of the Tongass National Forest. TLRMP guides all natural resource management activities and establishes management standards and guidelines according to the Land Use Designation. It describes resource management practices, levels of resource protection and management, and the availability and suitability of lands for different kinds of resource management.

According to TLRMP the Blue Lake Hydroelectric project is within three (3) land use designations (LUD). These are described in Appendix 1.

A CD of the TLRMP will be provided to you separately. References to Resource Goals and Objectives and Standards and Guidelines can be found in this document. The TLRMP and Final Environmental Impact Statement (TLRMP FEIS) provide the basis and essential clarification for Forest Service study requests.

Applicable Laws and Executive Orders:

Shown below is a partial list of federal laws and executive orders pertaining to project-specific planning and environmental analysis on federal lands. While most pertain to all federal lands, some of the laws are specific to Alaska.

- Multiple-Use Sustained-Yield Act of 1960
- National Historic Preservation Act of 1966 (as amended)
- Wild and Scenic Rivers Act of 1968, amended 1986
- National Environmental Policy Act (NEPA) of 1969 (as amended)
- Clean Air Act of 1970 (as amended)
- Alaska Native Claims Settlement Act (ANCSA) of 1971
- Marine Mammal Protection Act of 1972
- Endangered Species Act (ESA) of 1973 (as amended)
- Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (as amended)
- National Forest Management Act (NFMA) of 1976 (as amended)
- Clean Water Act of 1977 (as amended)
- Coastal Zone Management Act (CZMA) of 1972 (as amended)
- American Indian Religious Freedom Act of 1978
- Alaska Native Interest Lands Conservation Act (ANILCA) of 1980
- Archeological Resource Protection Act of 1980
- Cave Resource Protection Act of 1988
- Tongass Timber Reform Act (TTRA) of 1990

- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990
- Magnuson-Stevens Fishery Conservation and Management Act of 1996 (Essential Fish Habitat)
- Executive Order 11593 (cultural resources)
- Executive Order 11988 (floodplains)
- Executive Order 11990 (wetlands)
- Executive Order 12898 (environmental justice)
- Executive Order 12962 (aquatic systems and recreational fisheries)
- Executive Order 13007 (Indian sacred sites)
- Executive Order 13112 (invasive species)
- Executive Order 13175 (consultation and coordination with Indian Tribal Governments)
- Executive Order 13287 (migratory birds)

Part 2 – Comments to Initial Consultation Document

In our review of the Initial Consultation Document (ICD), we looked for the information listed in 18 CFR §16.8(b)(1):

- (i) Detailed maps showing existing project boundaries, if any, proper land descriptions of the entire project area by township, range, and section, as well as by state, county, river, river mile, and closest town, and also showing the specific location of all existing and proposed project facilities, including roads, transmission lines, and any other appurtenant facilities;
- (ii) A general engineering design of the existing project and any proposed changes, with a description of any existing or proposed diversion of a stream through a canal or a penstock;
- (iii) A summary of the existing operational mode of the project and any proposed changes;
- (iv) Identification of the environment affected or to be affected, the significant resources present and the applicant's existing and proposed environmental protection, mitigation, and enhancement plans, to the extent known at that time;
- (v) Streamflow and water regime information, both existing and proposed, including drainage area, natural flow periodicity, monthly flow rates and durations, mean flow figures illustrating the mean daily streamflow curve for each month of the year at the point of diversion or impoundment, with location of the stream gauging station, the method used to generate the streamflow data provided, and copies of all records used to derive the flow data used in the applicant's engineering calculations;
- (vi) Detailed description of any proposed studies and the proposed methodologies to be employed.

Comments are organized by Page and Section, as presented in the ICD.

Description of Existing Project, page 2

Future descriptions of the Project must recognize that all Project features integral to the Project's operation are included in the project boundary. These Project features include the

- 1) Blue Lake Reservoir,
- 2) Blue Lake Dam and spillway,
- 3) The intake structure, tunnel, conduit, penstock, and powerhouse,
- 4) All transmission lines, line corridors, and transformer facilities described in the ICD,
- 5) Roads constructed and used for the project, specifically Blue Lake road up to the intake, the dam access, and roads or trails used by the CBS to access transmission lines,
- 6) Any equipment sites such as stream gages needed to monitor current project effects and possible future operations,
- 7) The bypass reach between Blue Lake Dam and Sawmill Creek
- 8) Any recreational facilities that are constructed to accommodate project induced recreation.

Proposed Dam Raising, General Changes at the Dam Location, page 19, second paragraph

The CBS states that “Access would be primarily via existing roads with some new road construction leading to the crane site and staging areas.” All transportation and construction plans will need to clearly identify land ownership boundaries.

Project Operation Changes, page 24

First paragraph - The CBS states “The initial goal of operations evaluation will be to retain all instream flow requirements of the existing FERC license.” Forest Service requests for studies are shaped by this statement. If changes to instream flow requirements are proposed, the Forest Service will need to review and comment on any study plans needed to address the change.

Second paragraph - Spill events are predicted to be less frequent after the dam is raised. With fewer flushing flows, the potential exists for gravels to become embedded in the lower reaches of Sawmill Creek due to accumulations of fine sediments. We ask the CBS develop a plan to monitor spawning gravels in the lower reaches of Sawmill Creek, including consideration of periodic controlled releases if gravels do become embedded.

Water Resources, Blue Lake, page 28-29

A better understanding of the management of Blue Lake as the City’s water source would assist in identifying issues and opportunities. Does an Environmental Protection Agency (EPA) approved Watershed Management Plan exist, and if so, what are its’ major requirements?

The ICD states “Most glacial material settles out in the upper areas of the lake.” Prediction of future changes in the delta area due to settlement deposition should be evaluated by looking at the depth of deposition in the existing delta area.

Water Resources, Sawmill Creek, page 34

Currently, water releases to Sawmill Creek occur from an intake valve approximately 140 feet below the lake surface and is likely the reason Sawmill Creek stream temperatures are lower than those in other similar sized streams. Once the dam is raised, releases from Blue Lake into Sawmill Creek will come from an intake structure approximately 235 feet below the surface with even lower water temperatures. Post project monitoring should include monitoring the effects of colder stream temperatures on steelhead, coho, chum and pink salmon. The CBS should investigate the feasibility of an intake structure higher in the water column to provide for warmer water discharges.

Water Resources, Blue Lake Creek, page 35

The ICD states “...general observations indicated a flow range between 350 and 550 cfs during the summer and fall months.” Please define ‘general observations’. Are there calculations behind these numbers or interpolations from other gages?

Cultural Resources, page 47

With the proposal to raise the lake level by increasing the dam height, the road from Blue Lake to Glacier Lake and related facilities (including the mining which occurred near Glacier Lake) will need to be investigated as to eligibility for listing on the National Register of Historic Places.

SHPO, Sitka Tribe of Alaska, and Forest Service shall be consulted to determine the scope of all surveys.

The Forest Service suggests the CBS consider the potential historic significance of the dam, although not yet 50 years old it should be considered for National Register eligibility and the potential effect of the proposed activities.

Threatened and Endangered Species, page 48

The City states it “will complete a Biological Evaluation noting all endangered plant, fish and animal species in the Project area.” In order to meet professional standards, BEs must be conducted or reviewed by journey or higher level biologists or botanists (FSM 2672.42). We recommend the CBS seek Forest Service concurrence on contractors.

ENVIRONMENTAL ISSUES AND STUDIES

Geology and Soils, Issue GSI, page 50

Identify any existing mining claims under US Mining laws in project area. We suggest the CBS prepare a Mineral Potential Report for the area of inundation. The format and content vary but are generally prepared by Certified Geologist/Mineral Examiner, Professional Mining Engineers, or Mining Geologists. An example Report is included in Appendix 2. This report should put emphasis on identifying any locatable mining claimants, historical prospects, and minerals potential.

Geology and Soils, Studies, page 50

Issue GS1 and GS2 are separate issues and should be addressed in separate studies. Including determining whether raising the water level might decrease slope stability of the shoreline above the new water level, e.g. by cutting away the foot of the slope.

Fisheries and Aquatic Resources Issues, Issues, page 51

There is a break in the numbering of the Issues, are there issues F5, F6, F7 and F8?

Part 3 – Forest Service Study Requests

This section of the report provides the Forest Service’s study requests for the Blue Lake Hydroelectric Project. The Forest Service study requests are written following the protocols required under 18 CFR 16.8(b)(5) as follows:

- (i) Identifying its determination of necessary studies to be performed or information to be provided by the potential applicant, “**Study**”
- (ii) Identifying the basis for its determination, “**Basis for Study**”
- (iii) Discussing its understanding of the resource issues and its goals and objectives for these resources, “**Resource Goals & Objectives**”
- (iv) Explaining why each study methodology recommended by it is more appropriate than other available methodology alternatives, including those identified by the potential applicant pursuant to paragraph (b)(1)(vi) of this section, “**Study Methodology**”
- (v) Documenting that the use of each study methodology recommended by it is a generally accepted practice, “**Accepted Practice**”
- (vi) Explaining how the studies and information requested will be useful to the agency or Indian tribe in furthering its resource goals and objectives, “**Usefulness of Information**”

FISH AND AQUATIC RESOURCE STUDIES

A. Blue Lake and Blue Lake Tributary Fisheries

STUDY: Summarize reports of fish occurrence for Blue Lake and tributaries.

- 1) **Basis for Study:** Historic data provides a basis for understanding project effects on fisheries resources and use of these resources.
- 2) **Study Methodology and Practice:** Gather existing studies and reports from city, state, and federal sources. Data gathered by the CBS during the previous re-licensing will be particularly useful when summarized for each stream studied and Blue Lake.
- 3) **Resource Goals and Objectives:** Maintenance and/or restoration of the natural range and frequency of aquatic habitat conditions on the Tongass National Forest (TLRMP: Fish Habitat Planning; FISH 2, subpart IV).
- 4) **Accepted Practice:** Synthesis of existing information is a common practice to understand how project implementation has and could affect natural processes.

- 5) **Usefulness of Information:** This information can be useful to determine appropriate measures to mitigate for project effects.

STUDY: Document spawning and juvenile rearing habitat within Blue Lake and tributaries.

- 1) **Basis for Study.** The quantity and quality of existing spawning and rearing habitats is necessary to understand the effects of increased lake levels on the current rainbow trout population. Maintenance of a self-sustaining rainbow trout population in Blue Lake will be dependent upon adequate quantity and quality of spawning and rearing habitat and access to these habitats.
- 2) **Study methodology and Practice.** Techniques for fish sampling should include a combination of sampling techniques such as visual counts of spawning adults, snorkel surveys, minnow trap depletion, and/or electro-shocking to avoid sample biases.
- 3) **Resource Goals and Objectives.** Recognize watershed function and channel processes when planning for the protection, restoration or enhancement of fish habitat (TLRMP: Fish Habitat Planning, FISH2, subpart I). Determine fish value class of all streams in the affected area prior to or during site-specific project planning (TLRMP: Fish habitat Planning, FISH2, subpart III).
- 4) **Accepted Practice.** Methods suggested to document fish habitat use are widely used and accepted methods by natural resource agencies.
- 5) **Usefulness of Information.** Knowledge of habitat use patterns by resident rainbow trout will allow resource managers to better understand how the project may impact rainbow trout populations and to assess various mitigation measures that could reduce the effects of higher lake levels.

STUDY: Monitor flow and temperature for Blue Lake tributaries and temperatures for Sawmill Creek and Blue Lake Reservoir.

- 1) **Basis for Study:** Streamflow and stream temperature data are needed for Blue Lake tributaries to determine correlations with spawning. Temperature data is also requested for Blue Lake and Sawmill Creek.
- 2) **Study Methodology:** Collect streamflow and water temperature data for Blue Lake tributaries. Collect water temperature data for Blue Lake Reservoir, including temperatures near the surface, near the intake, and at intermediate levels. Temperature monitoring should be conducted during ice-free periods.
- 3) **Resource Goals & Objectives:** Maintain or restore water quality to provide for fish production. Maintain or restore optimum water temperatures for salmonids, considering winter and summer habitat requirements, climate, and natural watershed characteristics (TLRMP: Fish Habitat Planning, FISH2, subpart IV).

- 4) **Accepted Practice:** Thermistors have been developed by a number of companies in order to inventory water temperatures in conditions such as found on this project. Temperature models have been developed by USGS and others for standardized use.
- 5) **Usefulness of Information:** Flow and temperature data from Sawmill Creek and Blue Lake tributaries and Blue Lake Reservoir temperatures will be useful to agencies to determine water temperature discharged into Sawmill Creek at the Fish Valve Unit and at the third turbine tailrace to determine effects on fish movement.

STUDY: Modeling of Seasonal Blue Lake Reservoir levels.

- 1) **Basis for Study:** Once dam construction is complete additional reaches of Blue Lake Creek and other tributaries will be completely inundated all year. Depending on the water year, lake levels will fluctuate from approximately SM 0.5 to SM 1.9 on Blue Lake Creek. Sediment will accumulate in all areas of the inundation zone with sediment likely being flushed from the former stream channel when exposed during drawdown periods. Graphic illustrations of the rise and fall of reservoir levels during the year will help visualize where sediment is likely to build up and the amount of spawning habitat that may be available from April through June.
- 2) **Study Methodology:** Graphically illustrate the inundation zones for the various dam heights proposed. Utilize habitat data, stream flow data and the estimated timing of rising and falling reservoir levels throughout the year to model the seasonal changes to spawning and rearing habitat.
- 3) **Resource Goals & Objectives:** Recognize watershed function and channel processes when planning for the protection, restoration or enhancement of fish habitat. Maintain or restore the natural range and frequency of aquatic habitat condition on the Tongass National Forest to sustain the diversity and production of fish and other freshwater organisms (TLRMP: Fish Habitat Planning, FISH2, subpart IV).
- 4) **Accepted Practice:** This request pulls together four key pieces of data (tributary fish habitat, inundation zone, sediment accumulation and reservoir levels), to model changes to spawning and rearing habitat. This effort will help managers visualize progression of rising/falling reservoir levels and thus better evaluate the impacts to rainbow trout in the project area.
- 5) **Usefulness of Information:** To determine the effect of proposed reservoir fluctuation patterns on rainbow trout spawning areas and hence the effect on rainbow trout populations in the project area.

B. Entrainment Analysis

STUDY: Determine the quantity of Blue Lake Reservoir rainbow trout annually entrained into the Project tunnel/penstock.

- 1) **Basis for Study:** Fish entrained into the Blue Lake Project penstock cannot survive passage through the power plant turbines. If significant entrainment losses do occur, the Forest Service's goal would be to have entrainment losses mitigated.
- 2) **Study Methodology And Practice:** Entrainment potential at the project tunnel could be assessed using the following information sources: 1) physical characteristics of the intake structure; 2) bathymetry and morphology of Blue Lake near the intake; 3) life history and distribution of fish in Blue Lake; dive surveys in the intake vicinity; 4) literature regarding responses of fish to entrainment conditions; and 5) documented entrainment information from comparable hydroelectric facilities.
- 3) **Accepted Practice:** This methodology has been proposed by the Forest Service and accepted by other Alaska hydropower re-licensing applicants (Cooper Lake) to study fish entrainment.
- 4) **Resource Goals & Objectives:** Maintain or restore the natural range and frequency of aquatic habitat conditions on the Tongass National Forest to sustain the diversity and production of fish and other freshwater organisms (TLRMP: Fish Habitat Planning, FISH2, subpart IV).
- 5) **Usefulness of Info:** To determine if significant numbers of rainbow trout are entrained at the Project tunnel inlet.

TERRESTRIAL RESOURCE STUDIES

A. Terrestrial Wildlife – Blue Lake and Sawmill Creek

STUDY: Conduct a biological evaluation (BE) to assess the effects of the project on threatened, endangered, proposed and sensitive species (animal and fish) and their habitat. Complete a wildlife analysis report that addresses the effects of the proposed project on management indicator species (MIS) and other mammal and migratory bird species that occur within the Blue Lake Watershed.

- 1) **Basis For Study:** To evaluate the effects of inundating approximately 430 acres (maximum dam height) of National Forest System lands on terrestrial wildlife populations surrounding Blue Lake reservoir.

- 2) **Study Methodology:** CBS expects to conduct wildlife surveys during the amendment period and will develop these surveys in association with state and federal resource agencies. More specifically, the Forest Service requests that CBS provide the following information.
 - a) Describe habitat relationships of the mammals listed on pages 42 and 43 of the ICD in habitats affected by proposed future project operations (i.e., maximum inundation zone). Specifically, describe brown bear use (denning and foraging) and identify important deer and goat winter range affected by proposed future project operations.
 - b) Document observations of Tongass National Forest sensitive species and management indicator species inhabiting the maximum inundation zone.
 - c) Describe neo-tropical migrant bird use within the maximum inundation zone.
 - d) Perform bald eagle and goshawk nest surveys. Bald eagle surveys should focus on identifying nest trees through visual observation. Goshawk nesting sites should be identified using calling equipment following established Forest Service survey protocols. Goshawk surveys should be conducted for at least two (2) consecutive field seasons. Areas surveyed should include the maximum inundation zone and in the vicinity of Blue Lake dam to account for effects of construction activities.

Resource Goals & Objectives: Recognize as wildlife habitat, areas of land and water which can contribute to achieving wildlife objectives for consumptive and non-consumptive uses. Provide for the abundance and distribution of habitat necessary to maintain viable populations of existing native and desirable introduced species well distributed in the planning area. (TLRMP: Wildlife Habitat Planning, WILD1, subparts II, VI, VII, VIII, IX, XII, XIII, XV, XVI, XVIII, XIX; Threatened, Endangered and Sensitive Wildlife Species, WILD4, subpart II).

- 3) **Accepted Practice:** Wildlife Inventory and analysis methods often have to take site-specific conditions into account. Discussion with Forest Service and other biologists (ADFG and USFWS) would ensure that the methods are appropriate to the area.
- 4) **Usefulness of Information:** Surveys will identify wildlife species currently inhabiting the area and habitat relationships. This information is useful to evaluate the extent of project effects to wildlife species.

B. Migratory Waterfowl and Sea Birds

STUDY: Identify migratory waterfowl species and sea birds that currently use Blue Lake Reservoir for nesting, rearing, and resting areas. Identify nest locations and nest success at Blue Lake Reservoir.

- 1) **Basis for Study.** Knowledge of waterfowl and sea bird species using Blue Lake Reservoir will help determine the impacts of current and future project operations on these species.
- 2) **Study Methodology.** Identify location, species, sex and numbers present, nest locations and occupancy, nest elevation, habitat description, and nest success.
- 3) **Resource Goals and objectives.** Provide for the protection and maintenance of seabird (marine bird) rookeries. Maintain or enhance wetland habitats which receive significant use

by waterfowl and shorebirds. “Significant” is relative, but generally relates to use of a specific area by tens to hundreds of individuals of one or more species (TLRMP: WILD1, subpart XI; WILD1, subpart IX).

- 4) **Accepted Practice.** Surveys conducted by air, foot and/or boat are techniques used widely by natural resource management agencies for enumerating water birds, locating nest sites and determining nesting success.
- 5) **Usefulness of Information.** Waterbird surveys will identify project effects on water bird populations associated with Blue Lake Reservoir.

SUBSISTENCE STUDIES

A. Subsistence Uses of the Blue Lake Watershed.

STUDY: Identify traditional and existing subsistence uses of fish, wildlife and plants within the Blue Lake watershed.

- 1) **Basis for Study.** The City of Sitka is designated as a rural community by the Federal Subsistence Board. This designation allows residents of Sitka to harvest fish, wildlife and plant resources under federal subsistence rules. All of the project components (reservoir, Sawmill Creek, access road, and power transmission line) lie within close proximity to the city of Sitka. Knowledge of existing subsistence uses is needed to evaluate the effects of future project operations on the ability of subsistence users to access resources.
- 2) **Study Methodology.** State and federal agencies and local tribal governments maintain harvest records of fish and wildlife that can be used to assess subsistence uses within the project area. Conducting surveys within the community of Sitka and conducting personal interviews with long time residents of the area who may be familiar with subsistence uses within the project area would augment harvest data.
- 3) **Resource Goals and Objectives.** Consistent with the purposes for which National Forest System lands in Alaska were established, sound management principles, and the conservation of healthy populations of fish and wildlife, the utilization of the National Forest System lands in Alaska is to cause the least adverse impact possible on rural residents who depend upon subsistence (TLRMP: Subsistence, SUB, subpart I).
- 4) **Accepted Practice.** Review of harvest records and use surveys are common practices used by natural resource agencies to determine which species are harvested, numbers harvested, and locations of harvest.
- 5) **Usefulness of Information.** Knowledge of subsistence uses in the project area will help determine mitigation measures necessary to ensure that these uses will continue to be viable in the future.

PLANT STUDIES

A. Sensitive and Rare Plants.

STUDY: Conduct a biological evaluation (BE) utilizing data from surveys of the inundation zone for the presence of sensitive and rare plants.

- 1) **Basis for Study:** The proposed Project has extensive potentially inundated areas, as much as 430 acres of National Forest System lands.
- 2) **Study Methodology:** The Tongass National Forest – Guidance for Biological Evaluations: Sensitive Plants, November 2007 (Appendix 3) describes a methodology for plant biological evaluations. A list of rare plants known or suspected on the Tongass National Forest is found in the attached Guidance for Preparing a Botany Resource Report (Appendix 4). In order to meet professional standards, BEs must be conducted or reviewed by journey or higher level botanists (FSM 2672.42). The Forest Service is willing to enter into a collection agreement with the CBS to perform these studies, allowing a Forest Service professional botanist do the work at the CBS's expense. If this route is not taken we recommend the CBS seek Forest Service concurrence on the contractor.
- 3) **Resource Goals and Objectives:** The objectives of a BE as specified in Forest Service Manual 2673.41 are: 1) to ensure that actions do not contribute to loss of viability of any native or desired non-native plant or animal species; 2) to incorporate concerns for sensitive species throughout the planning process; 3) to ensure that activities will not cause a species to move toward federal listing. TLRMP directs that management will maintain habitat to support well distributed viable populations of sensitive species throughout the recent range of the species by avoiding or minimizing impacts to those species (TLRMP, Threatened, Endangered, Sensitive and Rare Plants, PLA1, subparts II, III).
- 4) **Accepted Practice:** Tongass National Forest rare and sensitive plant surveys were developed over many years by experienced botanists. Field surveys are conducted during a time of the year when plants are likely to be found in a condition they can be identified.
- 5) **Usefulness of Information:** The biological evaluation and companion surveys will identify the extent and magnitude of any sensitive plant concerns relating to the project.

TIMBER RESOURCES

STUDY: Timber within the inundation zone must be cruised to determine volume and appraised to determine value prior to dam construction.

- 1) **Basis for Study:** The proposed project would inundate hundreds of acres of timbered National Forest System Lands. The timber must be removed before inundation of the area.

- 2) **Study Methodology:** The study should include the area up to and beyond the maximum reservoir inundation by 100 feet (the average tree height of the forests in the area). Utilize Forest Service, Region 10 cruise design protocols and appraisal methods (See Appendix 5 – FSH2409.12, Timber Cruising Handbook). The Forest Service has this expertise and may be willing to enter into a collection agreement with the CBS to provide these services
- 3) **.Resource Goals and Objectives:** Forested land is classified as unsuitable for timber production. However, timber salvage may be considered on a case-by-case basis in consultation with the municipality.
- 4) **Accepted Practice:** Timber cruising using Alaska Region Coastal Alaska Timber Cruising Field Guide for Scribner Cruising in 32 Foot Log Lengths (March 2007) and FS Cruiser to process cruise data is the accepted method of obtaining commercial timber species volume and grades.
- 5) **Usefulness of Information:** To prepare a “TIMBER SETTLEMENT AGREEMENT” appraisal and contract for disposing of National Forest timber in association with the construction of a hydroelectric dam and reservoir. See **FSM 2464**.

HISTORICAL AND ARCHAEOLOGICAL RESOURCE STUDIES

A. Archaeological Studies within the Area of Potential Effect (APE)

STUDY: Identify and record historical and archeological resources within the Project’s Area of Potential Effect (APE)

- 1) **Basis for Study:** Heritage Resources must be inventoried and protected as specified by law. The principal goal of the evaluation will be the identification of historical and archeological resources in the APE that could be affected by the proposed action. “Identification” includes identifying properties and determining whether or not they are listed on, or eligible for inclusion in, the National Register of Historical Places (NRHP). Surveys must be accomplished and approval by the State Historic Preservation Office (SHPO) prior to any ground disturbance.

In accordance with Section 101(d)(6)(B) of the NHPA, consultation should take place with any Indian Tribe or Alaska Native corporation that attaches religious and cultural significance to properties in the APE. Consultation with Indian tribes must recognize the government-to-government relationship between the Federal government and the governments of Indian Tribes. This should take place with representatives designated or identified by the tribal government(s).

- 2) **Study Methodology:** A specific APE for the project should be defined. This would help in defining the area that needs to be investigated for direct and indirect effects on potential cultural resources. The CBS shall coordinate with SHPO, Forest Service, and the Sitka Tribe of Alaska to determine the approach to consultation, to define the APE, to determine the extent of field surveys, and seek approval of a contractor.

- 3) **Resource Goals and Objectives:** TLRMP states “*Any project, activity, or program that can result in changes in the character or use of historic properties and is under the direct or indirect jurisdiction of Forest, licensed or assisted by the Forest, including new or continuing projects, activities, or programs and any of their elements not previously considered under Sections 106 and 110 of the National Historic Preservation Act of 1966, as amended, shall be considered an undertaking and will require evaluation through inventory and survey.*”
- 4) **Accepted Practice:** Inventory and protection of Heritage Resources is a routine practice in any land-disturbing activities on National Forests. The study plan for methods should be reviewed and signed by a professional archeologist within the Forest Service.
- 5) **Usefulness of Info:** Inventory information will be used to protect the heritage resources as mandated by law.

RECREATION RESOURCE STUDIES

A Recreation Uses of the Sawmill Creek Corridor and Blue Lake

STUDY: Identify existing recreation uses along the Sawmill Creek Corridor and Blue Lake Reservoir.

- 1) **Basis of Study:** The city of Sitka has a population of nearly 8,600 people living and working in the community. The project components are within five to seven miles of the center of town. Knowledge of existing recreation uses needs to be evaluated for effects of current and future project operations. This information was collected in 2004 and should be collected again. This data should be analyzed and balanced by a statistical specialist, given to the Forest Service recreation specialist on the project and included in the environmental report written by the CBS. Included in this information should be the average monthly pedestrian use of the Beaver Lake trail, the average monthly vehicle or pedestrian use (depending if the road is open to vehicle traffic or not) of the Blue Lake road system and a comparison of the same uses during 2004 and 2008.
- 2) **Study Methodology:** The Blue Lake Road is used by recreationists to access Sawmill Creek Campground, Beaver Lake Trail, Heart Lake trail and Blue Lake Reservoir overlook and lake. A study of the existing recreation use of the roads can be accomplished by using road counters and infrared trail counters for a full year. These counters would calculate motorized use and pedestrian use of the road. With these visitor numbers, the City would be able to evaluate the amount of recreation use in the area and how the operation of the project could help manage the recreation use of the area.
- 3) **Resource Goals and Objectives:** To provide a range of recreation opportunities consistent with the Recreation Opportunity Spectrum (ROS) Classes of the area from project induced

recreation use. Management activities will be designed to meet the ROS class as identified in TLRMP.

- 4) **Accepted Practice:** Review of recreation use data is a common practice used by resource agencies to determine how often an area is being use for recreation.
- 5) **Usefulness of Information:** Knowledge of existing recreation use in the Blue Lake area will allow the Forest Service to manage for existing and future use with the CBS during the life of the FERC license and amendments.

SCENIC RESOURCE STUDIES

STUDY: Determination of ongoing and proposed Project effects on existing scenery.

- 1) **Basis for Study.** To evaluate the effects of the Project, including inundating approximately 430 acres (maximum dam height) of National Forest System lands on scenic resources.
- 2) **Study Methodology.** Conduct a visual resources inventory and assessment to determine Project area visual characteristics in context with the surrounding landscape and a baseline photographic inventory of Project elements from Visual Priority Routes and Use Areas (Blue Lake, Sawmill Creek Road and Campground, Beaver Lake Trail, etc.) where the project effects are visible. Use of visualization software and techniques are highly effective in communicating expected visual effects.
- 3) **Resource Goals and Objectives.** Recognize the scenic values of forest lands viewed from popular roads, trails, recreation sites and minimize the visibility of developments as seen from Visual Priority Travel Routes and Use area. (TLRMP: SCENE1,2 and 3).
- 4) **Accepted Practice.** The study approach proposed for visual resources will comply with methodologies described in USFS Agricultural Handbook Number 701, "Landscape Aesthetics, A Handbook for Scenery Management" (USFS 1995). This handbook has been developed for standard use in all projects on National Forests. User surveys are standard techniques employed by the Forest Service for evaluating visual effects.
- 5) **Usefulness of Information.** The information is needed to assess what measures may be needed to ensure that the Project complies with the scenic integrity objectives of the TLRMP. A visual resource inventory and assessment study helps better develop site location alternatives, aesthetic design alternatives, and inform and/or disclose effects to the public more thoroughly.

TRANSPORTATION STUDIES

STUDY: Evaluate the existing Blue Lake Road for safety and structural considerations.

- 1) **Basis for Study.** Timber and construction haul have the potential to destabilize otherwise stable slopes.
- 2) **Study Methodology.** Identify areas of potential and historic avalanches and areas of potential soil instability. Describe the history of safety issues on the road, its conformance with current safety standards and prepare a plan to mitigate safety hazards that are identified in the plan. Evaluate structural issues with the road prism and prepare a plan to mitigate. Studies must be conducted prior to construction and included within the analysis. Specific questions to address are
 - a. How many cubic yards of materials will be needed, and where will this material come from for the dam construction? How will it get to the site?
 - b. The CBS has mentioned using a continuous pour of concrete during dam construction. What if the pour is interrupted by road problems?
- 3) **Resource Goals and Objectives:** Recognize that the existing road may not be appropriate for construction and timber haul.
- 4) **Accepted Practice.** Geotechnical analysis methods often have to take site-specific conditions into account. Discussion with Forest Service engineers would ensure that the methods are appropriate to the area.
- 5) **Usefulness of Information.** This information will guide any improvements necessary for the access road for both construction and later use.