

# **DRAFT BOTANICAL RESOURCES STUDY PLAN**

## **Takatz Lake Hydroelectric Project (FERC No. 13234)**

### **City and Borough of Sitka Electric Department**

**August, 2010**

## **BACKGROUND**

In September, 2008, the City and Borough of Sitka (“City”) received a Preliminary Permit (“Permit”) for the Takatz Lake hydroelectric Project (FERC No. 13234, “Project”) from the Federal Energy Regulatory Commission (FERC) in Washington D.C. The Project would be located approximately 18 miles NW of Sitka, Alaska, on Baranof Island and would affect Takatz Lake and Takatz Creek, and Baranof Lake and River. The Project is described in detail in the Preliminary Application Document (PAD) filed June 2008.

Generally, the Project would consist of one or two dams on Takatz Lake, a power conduit consisting of a mostly unlined tunnel and steel penstock leading to a powerhouse located at tidewater on Takatz Bay. Installed capacity of the Project would be approximately 27 megawatts (MW).

## **OBJECTIVES**

To support the licensing process, the primary botanical study objectives will be to determine locations and types of existing vegetation resources which might be potentially-affected by construction and long-term operation of the Takatz Lake Project. Of particular interest during the pre-construction phase of the licensing will be documentation of existence of plant species variously listed as rare, threatened, endangered or sensitive.

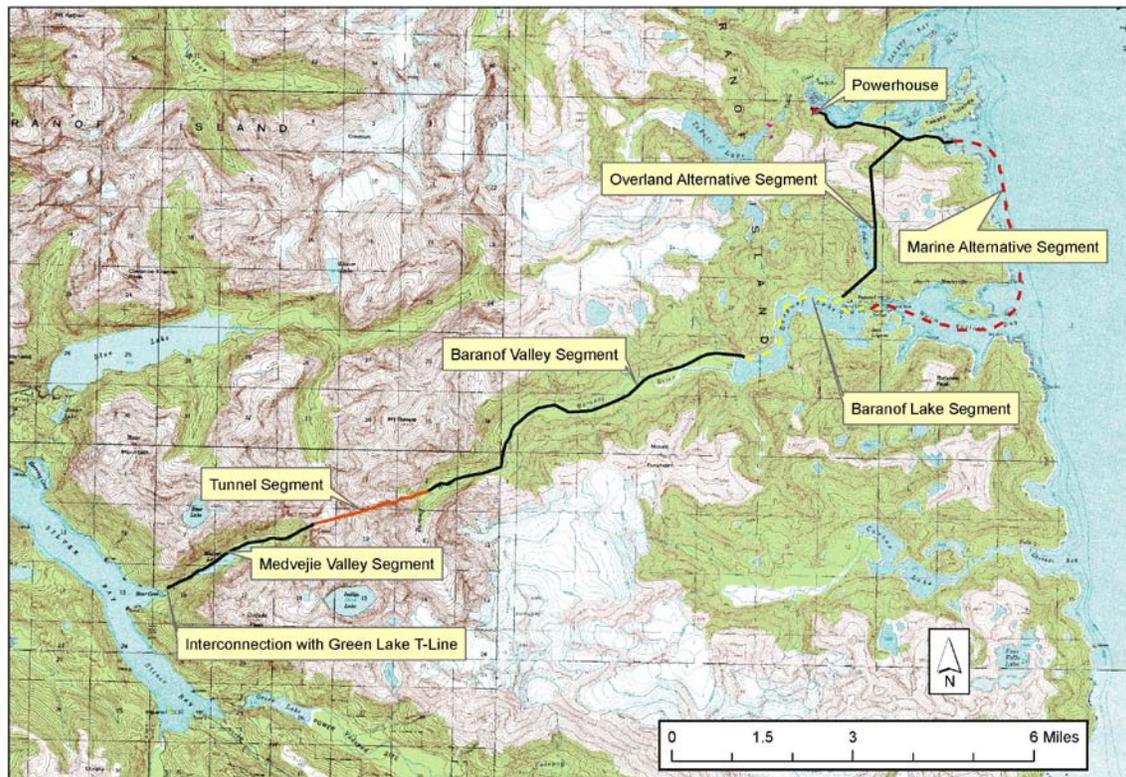
## **STUDY SCOPE**

### **GENERAL**

Generally, vegetation resources will be surveyed in all areas potentially disturbed by project construction or long-term operation. This will include areas within an approximately 100-foot band from project features and proposed access roads or transmission corridors. Exact survey areas, particularly for sensitive plants, will be determined after final design of the project and just prior to construction. Results of the studies described in this plan will be used to generally determine vegetative type and potential for sensitive plants within the boundaries described above.

## TRANSMISSION ALTERNATIVES

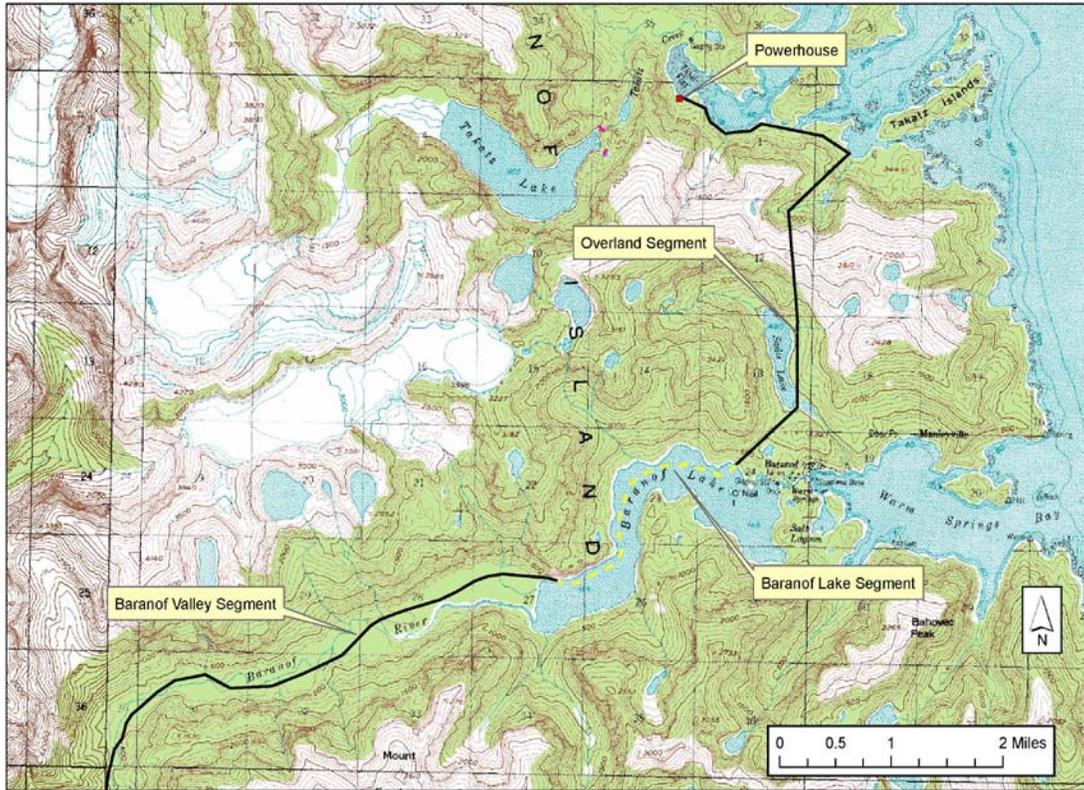
The scope of botanical studies will be influenced by final design and locations of Project features, including the proposed transmission line route. The proposed transmission routing as described in earlier licensing documents (City, 2008; FERC, 2009) depicted a submarine transmission route from the powerhouse proceeding underwater along Chatham Strait and then through the community of Baranof Warm Springs. This routing is referred to as the “Marine Alternative (Figure 1). The line then proceeded underwater through Baranof Lake and on overhead lines up the Baranof River valley, across the Baranof Mountains and down the Medvejie River valley to its connection with the City’s existing transmission facilities.



**Figure 1. Takatz Lake Project Transmission Alternatives and Terminology. Note: Overland Alternative is City’s Preferred Alternative**

## NEW TRANSMISSION ROUTING

Based on comments received during SD1 review and after Scoping meetings, the City has developed a new transmission alternative which avoids potential effects on marine resources and on the community of Baranof Warm Springs. This routing, referred to as the “Overland Transmission Alternative”, or simply “Overland Alternative” is shown in Figure 2.



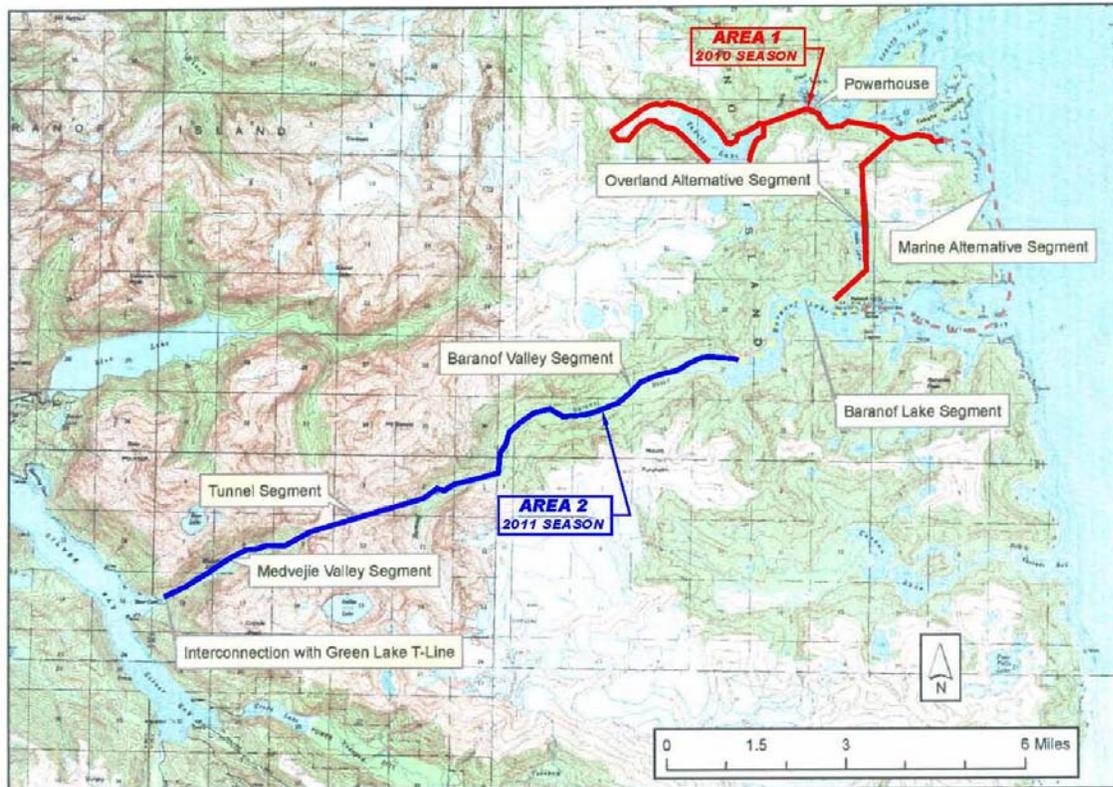
**Figure 2. Detail of Overland Transmission Alternative**

Note that the Overland Alternative does not change the routing of the transmission segments beyond the point at which the line emerges from upper Baranof Lake.

At this time, the Overland Alternative is the City’s preferred transmission alternative because it responds to concerns for impacts on both the community of Baranof Warm Springs and those on marine resources in Chatham Straight. Further, the Marine Alternative would necessitate extensive and difficult marine engineering feasibility analyses.

**STUDY SCOPES for 2010 and 2011 FIELD SURVEYS**

As described in more detail below, the City intends to conduct field surveys in two separate Project areas in 2010 and 2011 (Figure 3). In 2010, those areas delineated on Figure 3 as “Area 1”, from the Takatz Lake basin to the shoreline of Baranof Lake will be surveyed. In 2011, the remaining Project area, denoted on Figure 3 as “Area 2”, will be surveyed.



**Figure 3. Study Areas for 2010 and 2011 Field Seasons. (From USGS Sitka A-3, 1:63,360)**

### STUDY COMPONENTS

Generally, botanical resources studies will consist of two separate but related elements: 1) a Pre-Field Review; and 2) Field Surveys, as described in more detail in the following.

#### PRE-FIELD REVIEW

Pre-field review will involve several sources of background information on known or potential plant existence in the general project area. These sources will include:

- US Forest Service (USFS) reports and the ARCTOS (Museum of the North) database for taxa reported from the immediate and adjacent areas on Baranof Island (Takatz, Kasnyku, Baranof Warm Springs, Medvejie);
- Tongass National Forest Sensitive and Species of Special Interest plant list and the Alaska Natural Heritage Plant Tracking list to target potential habitat within the project areas suitable for listed species;
- Aerial photos and existing GIS layers for potential sensitive plant habitat in the project area;

- Existing GIS layers for vegetation, wetlands and soils to delineate potential wetlands; and
- Reports of Invasive or Noxious weeds from the Project Area

## **FIELD SURVEYS**

### **Survey Scope and Methods**

Because of the large area covered by the various project features, field surveys during 2010 will focus on Area 1 described in Figure 3, above. Within this area, researchers will conduct a level 5 (Intuitive Controlled) survey within potentially-impacted areas including the proposed inundation zones, tunnel portals, penstocks, the powerhouse, switchyard, transmission line, access roads, and appurtenant facilities.

Within these areas, researchers will conduct foot surveys to document, in addition to overall vegetation types and species, plants included on either the Tongass National Forest Sensitive Plant list or the Alaska Natural Heritage Tracking List and any invasive or noxious plants.

Researchers will record GPS tracks of all areas surveyed, transferred to base maps of the survey areas and will collect herbarium specimens and photographic record of specific plant taxa of interest.

### **Survey Schedule**

Field surveys will begin in August, 2010, and continue throughout August, depending on access and movement restrictions. Because so little field study has been conducted in Area 1 (See Figure 3), the rate of survey completion will not be known until initial reconnaissance and early field surveys have been completed. Surveys will, to the extent possible, account for periods related to the growing season for maximal species capture.

## **REPORTING**

A draft report documenting results of studies conducted in 2010 will be distributed in late 2010 or early 2011. One of the prime objectives of the 2010 report will be to develop study scope and protocol for the 2011 field season.

The 2010 report will document baseline distribution of vegetation types, observed species of concern and wetlands. Data from foot surveys will also be used to ground-truth the existing GIS vegetation mapping layers and projected wetland areas. From this, researchers will determine locations and acres of each vegetation type (Caouette and DeGayner, 2005) and wetlands within the project area.

Because project design and layout are likely to change through the licensing period, actual impact analysis will await be done after final project feature locations and construction details are developed.

## LITERATURE CITED

Caouette, John and Eugene DeGayner (2005). Predictive mapping for tree sizes and densities in southeast Alaska. . *Landscape and Urban Planning*, 72:49-63