

Northwest Transmission Line Proposed Project

Draft Terms of Reference for an Application for an Environmental Assessment Certificate

Prepared for:

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1 Preface

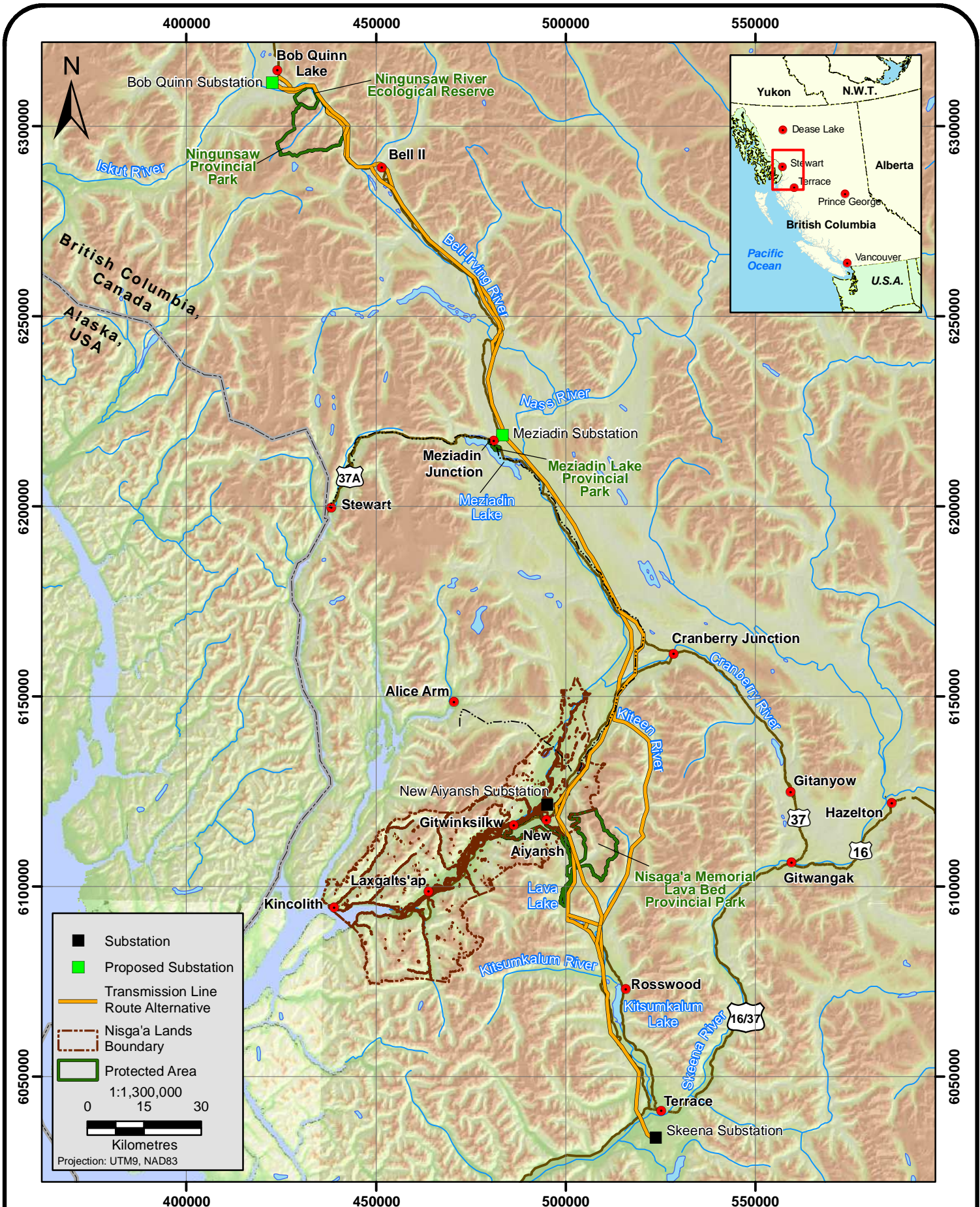
2 British Columbia Transmission Corporation (BCTC) is a provincial Crown Corporation
3 responsible for planning, managing, operating and maintaining most of British Columbia's
4 electrical power transmission system and its interconnections with the larger North American
5 grid.

6 BCTC has initiated environmental studies to assess the potential effects associated with the
7 construction and operation of a new 287-kilovolt (kV) AC overhead high voltage electric
8 transmission line from the Skeena Substation, near Terrace, to a new substation to be located
9 near Bob Quinn Lake. The Northwest Transmission Line proposed project (the "proposed
10 Project") would be approximately 335 km in length. South of Meziadin Junction, much of the
11 route would parallel, but be separate from, the existing 138kV circuit right-of-way. Separate
12 right-of-way would be used to permit the straighter right-of-way required by a 287 kV circuit,
13 minimize visual impacts, avoid rough terrain, and lessen environmental effects. North of
14 Meziadin Junction, new corridor and right-of-way would be required. The transmission line and
15 associated facilities would be operated and maintained by BCTC and owned by BC Hydro. The
16 proposed Project location is shown in Figure 1-1.

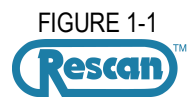
17 Environmental assessment (EA) is a planning and evaluation process for predicting the
18 significance of potential effects of proposed projects and informing decisions on their overall
19 acceptability within the context of prevailing legal and policy objectives and technical
20 expectations. EA supports decision-making through the early identification of measures to
21 avoid, minimize or otherwise mitigate potential adverse environmental effects of projects.

22 BCTC's Northwest Transmission Line proposed Project is being reviewed under the British
23 Columbia *Environmental Assessment Act*, S.B.C. 2002, c.43 (BCEAA) and requires an
24 EA Certificate in order to proceed. An order under section 10 of the *Environmental Assessment*
25 *Act* was issued on May 31, 2007. As presently understood, the proposed Project does not
26 require a federal assessment under the *Canadian Environmental Assessment Act*, S.C. 1992, c.37
27 (CEAA). However, Environment Canada continues to monitor the process.

28 These Terms of Reference have been prepared with input from the Nisga'a Nation, First Nations,
29 government agencies, and the public to identify the issues to be addressed and the information to
30 be provided in an application (the "EAC Application") for an Environmental Assessment
31 Certificate for the Northwest Transmission Line proposed Project.



British Columbia Transmission Corporation - Proposed Northwest Transmission Line Route



Northwest Transmission Line Project

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Northwest Transmission Line Proposed Project

Draft Terms of Reference

Content Requirements for BCTC's Application for an Environmental Assessment Certificate

The information outlined in the following pages identifies the information that must be included in BCTC's Application for an EA Certificate for the Northwest Transmission Line Proposed Project

1 **List of Abbreviations**

2 *A List of Abbreviations will be included in the EAC Application. It will be based on the*
3 *following list, and expanded as necessary during the preparation of the EAC Application for the*
4 *proposed Project.*

Acronym	Definition
AIA	Archaeological Impact Assessment
EAC Application	Application for an Environmental Assessment Certificate, and for a Screening Level Environmental Assessment
BC Hydro	British Columbia Hydro and Power Authority
BCEAA	British Columbia Environmental Assessment Act
BCTC	British Columbia Transmission Corporation
BQS	Bob Quinn Substation
CEAA	Canadian Environmental Assessment Act
EA	Environmental Assessment
EAC	Environmental Assessment Certificate
EMP	Environmental Management Plan
kV	Kilovolt
NTL	Northwest Transmission Line
TU	Traditional Use
VECs	Valued Ecosystem Components

1 **Glossary**

2 A glossary will be included in the EAC Application to define commonly used terms and phrases,
3 including Nisga'a Nation and First Nations terms and place names where applicable.

Term

Definition

1 **Table of Concordance**

2 The EAC Application will contain a Table of Concordance that clearly indicates how the
3 requirements contained in the accepted Terms of Reference have been met by the information
4 provided.

1 **Executive Summary**

2 An Executive Summary of the EAC Application will be prepared as a stand-alone document that
3 presents sufficient information to provide the reader with an overview of the proposed Project
4 and the findings of the environmental assessment.

5 Contents

6 The Executive Summary will contain a summary of the proposed Project information including,
7 but not limited to, the following:

- 8 • A concise description of the proposed Project.
- 9 • A summary description of information distribution, Nisga'a Nation, First Nations and public
10 consultation activities undertaken.
- 11 • A summary of issues raised and solutions suggested during the consultations.
- 12 • A general outline of key potential effects and proposed mitigation measures within various
13 technical disciplines.
- 14 • Conclusions.

1. Introduction

Chapter 1 of the EAC Application will include general background information on the British Columbia Transmission Corporation (“BCTC” or “Proponent”), the Organization of the EAC Application, the proposed Project and the regulatory regime that applies to this proposed Project.

1.1 Proponent Identification

- Include Proponent history, description, roles and responsibilities and contact information (name, address, phone, fax, email).
- Describe the roles, responsibilities, and qualifications of the professionals retained by the Proponent to prepare the Terms of Reference, conduct the technical studies, and to prepare the EAC Application in accordance with the Terms of Reference.

1.2 Organization of Application

- Describe how the EAC Application is organized.

1.3 Project Overview

- Briefly describe the proposed Project and its purpose, referencing the detailed proposed Project Description to be provided in Chapter 4 of the Application.
- Describe the proposed Project’s location, size and main features.
- List proposed Project elements included in the “Project Scope” including reference to orders defining scope of the proposed Project for purposes of the environmental assessment under the BC EAA.
- List the lands which the proposed Project requires use of; for example Crown land and / or private or other lands.
- Include figures or maps depicting the region within which the proposed Project occurs.
- Provide an indication of the socioeconomic scope of construction and operations by providing an estimate of the labour force required (direct labour) during construction and operations.
- Provide a capital cost estimate of the proposed Project disaggregated by major proposed Project components.

1.3.1 Proponent Ownership and Tenure

- Describe the ownership status and development rights held for the NTL Project, including a listing of any land tenures and their status applicable to the Right-of-Way and substation requirements.

1 **1.4 Project Setting**

2 **1.4.1 Geographic Setting and Communities**

- 3 • Describe the geographic setting of the proposed Project supported by general and detailed
4 maps and / or figures.
- 5 • List the communities within the vicinity of the proposed Project and show the location of
6 these communities on the setting map(s).

7 **1.4.2 Nisga’a Nation and First Nations Setting**

- 8 • Describe the communities of the Nisga’a Nation and show their location on a map.
- 9 • Describe the First Nations in the vicinity of the proposed Project and show their claimed
10 traditional territories on a map.

11 **1.4.3 Existing 138 kV System**

- 12 • Provide a general description of the existing 1L381 and 1L387 transmission line systems.
- 13 • Provide a general description of existing substations.
- 14 • Identify tenures associated with the existing overhead components and substations, including
15 when they were acquired and any renewal terms.
- 16 • Describe the limitations of the existing transmission system (transmission lines and
17 substations) in view of future regional economic and residential load growth demand in
18 northwest B.C.
- 19 • If applicable, describe the manner and extent to which modifications of the existing system
20 will form part of the proposed Project.
- 21 • Describe any modifications to the existing 138 kV transmission line system required to
22 accommodate the proposed Project.

23 **1.5 Proposed Project Background and Rationale**

- 24 • Summarize proposed Project rationale.
- 25 • Summary of proposed Project planning and proposed Project review history to date.
- 26 • List proposed Project benefits, including regional socio-economic benefits, environmental
27 and social benefits.

28 **1.6 Regulatory Framework**

- 29 • Identify and summarize any applicable provincial and federal legislative and policy
30 requirements of any level of government that may be applicable to the proposed Project.
- 31 • Identify the local government with in the vicinity of the proposed Project and any applicable
32 local government planning body and zoning requirements.
- 33 • Nisga’a Lisims Government requirements on behalf of the Nisga’a Nation.
- 34 • Describe the current land use context and address how proposed Project activities will
35 interact with the objectives and strategies established under government approved land and
36 resource management plans.

- 1 • Describe the regulatory process and considerations of any applicable park boundary
2 amendment(s).

3 **1.6.1 Provincial Environmental Assessment Process**

- 4 • Summarize the provincial EA process, including any legal orders issued pursuant to the
5 BCEAA relating to proposed Project review.

6 **1.6.2 Permits, Licenses and Authorizations**

- 7 • Prepare a table summarizing enabling legislation, names of regulatory agencies, and relevant
8 permits, approvals, permanent or temporary authorizations for each level of government.
9 • Identify if concurrent certification / permitting is being sought under provincial legislation
10 through Section 23 of BCEAA.

11 **1.6.3 Federal Environmental Assessment Process**

- 12 • If the proposed Project is determined to be subject to review under the *CEAA*, the manner
13 and extent to which assessment components under *CEAA* will be harmonized with
14 assessment components under BCEAA, will be explained.

2. Information, Distribution and Consultation

Proposed project information distribution, and public and First Nation participation in EAs are important aspects of project reviews. Public consultation measures must comply with the “Public Consultation Policy Regulation”, BC Reg 373/2002 and the requirements set out in the section 11 order issued pursuant to the BCEAA.

In preparing the Application, the Proponent will demonstrate how it has consulted with interested parties and communities that are likely to be affected by the proposed Project, and other parties who may be interested in the proposed Project as set out in the section 11 order issued pursuant to the BCEAA. In preparing the Application, the Proponent will outline how it intends to consult with interested parties during the Application review period for the proposed Project.

2.1 Information Distribution

The application will describe the information distribution activities undertaken during the pre-application review stage and proposed for the application review stage.

2.2 Nisga’a Lisims Government and First Nations Consultation

The Application will describe consultations undertaken during the pre-application stage with the Nisga’a Lisims Government and First Nations. The Application will describe the objectives of Nisga’a Lisims Government and First Nations’ consultations, the methods used, issues raised during these consultations and the ways in which the Proponent has addressed these issues.

The Application will also describe consultations proposed for the Application review stage, including the objectives, methods used and the ways in which the Proponent will address issues raised by the Nisga’a Nation and First Nations.

2.3 Local, Provincial, and Federal Government Agency Consultation

The Application will describe consultations undertaken during the pre-application stage with government agencies and local governments. The Application will describe the objectives of these consultations, the methods used, issues raised during these consultations and the ways in which the Proponent has addressed these issues.

The Application will also describe consultations proposed for the Application review stage, including the objectives, methods used and the ways in which the Proponent will address issues raised by local, provincial and federal government agencies.

2.4 Stakeholder Consultation

The Application will describe consultations undertaken during the pre-application stage with stakeholders (*e.g.*, guide outfitters, trappers, forestry, mining and outdoor recreational interests and other tenure holders). The Application will describe the objectives of these consultations, the methods used, issues raised during these consultations and the ways in which the Proponent has addressed these issues.

1 The Application will also describe consultations proposed for the Application review stage,
2 including the objectives, methods used and the ways in which the Proponent will address issues
3 raised by stakeholders.

4 **2.5 Public Consultation**

5 The Application will describe consultations undertaken during the pre-application stage with
6 members of the public. The Application will describe the objectives of these consultations, the
7 methods used, issues raised during these consultations and the ways in which the Proponent has
8 addressed these issues.

9 The Application will also describe consultations proposed for the Application review stage,
10 including the objectives, methods used and the ways in which the Proponent will address issues
11 raised by members of the public.

1 **3. Review of Alternatives**

2 Chapter 3 of the EAC Application will outline how BCTC has considered alternative means of
3 carrying out the proposed Project.

4 Describe alternative means of providing electrical power to serve demand in northwestern BC

5 Describe alternative means of carrying out the proposed Project, including a description of the
6 process that BCTC used to comparatively evaluate construction methodologies and undertakings
7 based on environmental, engineering, and economic considerations and, if appropriate, explain
8 why the alternatives did not warrant further consideration. Provide a concise rationale for the
9 selection of the preferred alternative.

1 **4. Project Description**

2 Chapter 4 of the EAC Application will contain a description of the proposed Project facilities
3 and the activities associated with its construction and operation, including construction
4 procedures, maintenance activities, schedule, and the removal, replacement or upgrading of
5 facilities

6 **4.1 Project Components**

- 7 • Provide an overview description of the components of the proposed Project undergoing
8 environmental assessment under BCEAA
- 9 • Provide technical renderings of major components at a level of detail appropriate to
10 environmental assessment under BCEAA.

11 **4.1.1 287 kV System Transmission Line System**

- 12 • Describe the proposed 287 kV transmission line system configuration, at a level of detail
13 appropriate to environmental assessment under BCEAA.
- 14 • Describe the proposed 287 kV transmission line system conductor configuration above
15 ground and vegetation levels in accordance with considerations such as terrain, system
16 security, hazard abatement and maintenance of ground-level environmental values.
- 17 • Describe the location of the proposed transmission line system including the modifications to
18 existing substations, in relation to rights-of-way.

19 **4.1.2 Substations**

- 20 • Describe the proposed substation modifications required to accommodate the new circuits at
21 existing substation(s).
- 22 • Describe the location and requirements of new substation construction, and an assessment of
23 alternative substation locations.

24 **4.1.2.1 Modification of the Skeena Substation**

- 25 • Describe the proposed substation modifications required to accommodate the new circuits,
26 including the addition of phase shifting transformers, shunt reactors, circuit breaker, and
27 other equipment as required.

28 **4.1.2.2 Bob Quinn Substation**

- 29 • Describe the proposed Bob Quinn substation (BQS) including potential general
30 configurations and location.

31 **4.1.3 Access**

- 32 • Describe the access which is required, temporarily or permanently, for the proposed Project.
33 Depict proposed access on the proposed Project orthophoto map base construction related
34 and permanent access requirements for the proposed Project and provide technical renderings
35 in a level of detail appropriate to assessment under BCEAA.

- 1 • For proposed Project-related access infrastructure summarize in tabular form the number and
2 general location relative to fish-bearing streams and the possible need for stream-crossings
3 and, if applicable, whether navigable waters are affected.

4 **4.1.4 Temporary Infrastructure**

- 5 • Describe any temporary proposed Project components and infrastructure such as equipment
6 staging, laydown areas or stream crossings that may be required and provide technical
7 renderings in a level of detail appropriate to assessment under BCEAA.

8 **4.1.5 Materials Management**

- 9 • Identify expected processes and operations that will utilize hazardous materials in the
10 construction and operation of the transmission line.
11 • Develop a list of materials and substances likely to be involved in construction and operation
12 of the NTL.
13 • Describe the use, if any, of explosives in the construction of the proposed Project.

14 **4.2 Construction Activities, Plan and Schedule**

- 15 • Discuss construction methodologies and sequencing for each of the proposed Project
16 components.
17 • Describe proposed schedules, activities and milestones related to construction of the
18 proposed Project.
19 • Prepare a construction schedule diagram / flow chart identifying major tasks and timelines.

20 **4.2.1 Transmission Lines and Substations**

- 21 • Describe construction procedures for installing the transmission line structures and stringing
22 of the lines, including procedures required for access and for preparation of the right of way,
23 for example, as may be required:
24 • Access road upgrading;
25 • New access roads;
26 • Right-of-way clearing and site preparation;
27 • Possible equipment laydown and storage areas;
28 • Transmission line structure foundation construction;
29 • Tower installation;
30 • Conductor installation;
31 • Decommissioning and removal of any sites and materials, temporary or disused
32 infrastructure;
33 • Site reclamation and restoration; and
34 • Substation construction activities including the installation of phase shifting transformers.
35 • Indicate any requirement for specialized crossing structures or construction techniques (*i.e.*,
36 such as over the Skeena River or Nass River), and in areas of high potential seismic, flood,
37 landslide or avalanche risk.

- 1 • Identify areas where new access roads and/or stream crossings will be required to facilitate
2 structure installation and/or stringing of the transmission lines, and possible equipment
3 laydown and storage areas.
- 4 • Any timing restrictions or constraints that may be applicable with respect to activities
5 (examples may be in-stream works near fish spawning or rearing areas, tree clearing in
6 nesting season, increased natural hazard risk such as snow avalanche season, and audible
7 noise near settlement areas).
- 8 • Prepare a detailed schedule of the construction sequencing, including the modifications to the
9 substations.

10 **4.3 Operations and Maintenance**

- 11 • Discuss the operations phase maintenance activities for each of the proposed Project
12 components.

13 **4.4 Capital, Operation and Maintenance Costs**

- 14 • Provide a total capital estimate of the proposed Project costs disaggregated by major
15 proposed Project components.
- 16 • Provide an estimate of annual maintenance costs.

17 **4.5 Labour Force**

- 18 • Estimate construction workforce requirements (direct jobs) for each of the transmission line
19 and substation components.
- 20 • Estimate operation / maintenance workforce requirements (direct jobs) for each of the
21 transmission line and substation components.

5. Scope of Environmental Assessment and Methodology

Chapter 5 of the EAC Application will describe the methods used to identify the potential adverse environmental effects that may result from the proposed Project, and to develop measures to avoid, reduce or otherwise mitigate those effects.

In general, the assessment will include four main elements:

- Technical studies of the relevant environmental, social, economic, heritage, and health effects of the proposed Project;
- Opportunities for the Nisga'a, First Nations, the public and other interested parties to identify issues and to provide meaningful input including site-specific knowledge and perspectives on land and resource uses along the transmission corridor;
- Identify ways to avoid, minimize or otherwise mitigate adverse effects; and
- Consider input from all interested parties in compiling the assessment findings.

The scope, procedures, and methods of the assessment are tailored to the biological and physical conditions and socio-economic values and resources of the proposed Project area. This allows each assessment to focus on the issues that are relevant to the nature and scope of the proposed Project.

For the purposes of environmental assessment, the proposed Project is considered to consist of the following major components:

- Transmission Lines and Structures
- Substations
- Access and Construction requirements.

Due to the long-term nature of the operational phase of the proposed Project, which would typically be 50 years or greater, the EAC Application will not include a detailed evaluation of the potential effects of decommissioning the proposed Project. BCTC will prepare a Conceptual Decommissioning Plan (see Chapter 11).

5.1 Scope of Environmental Assessment

The assessment of the proposed Project will consider the potential adverse effects of the proposed Project on the following:

- Geophysical environment: physiography and topography, geology and soils, surface water quality, surface water hydrology, hydrogeology and groundwater quality, and geotechnical stability;
- Atmospheric environment: climate, wind, precipitation, and air quality;
- Fisheries and aquatic resources;

Scope of Environmental Assessment and Methodology

- 1 • Wildlife and wildlife habitat, including threatened and endangered species;
- 2 • Terrestrial ecosystems, vegetation and soils, including threatened and endangered vegetation;
- 3 • Wetland ecosystems;
- 4 • Visual landscapes;
- 5 • Archaeology and heritage resources;
- 6 • Land and resource use;
- 7 • Transportation and utilities;
- 8 • Public health: audible noise, electric and magnetic fields, domestic water quality and supply,
- 9 local (country foods);
- 10 • Social community and local economy: community population and demographics;
- 11 employment and labour market; human effects of environmental change; housing; property
- 12 values; government revenues; social and emergency services;
- 13 • First Nations considerations; and
- 14 • Nisga'a considerations as set out in the Nisga'a Final Agreement and other considerations.

15 5.2 Study Area Spatial and Temporal Boundaries

16 Describe and/or identify on maps of appropriate scale for each of the technical disciplines the
17 geographical areas and timeframes used for documenting the baseline conditions and assessing
18 the potential environmental effects of the proposed Project, including potential effects on
19 Nisga'a Nation and First Nations interests.

20 Identify and present the rationale for the temporal boundaries used to assess the environmental
21 effects for all phases of the proposed Project including: pre-construction, construction,
22 operations, and maintenance.

23 A summary of applied inventory methods and existing information and baseline data collection
24 results of discipline-specific studies will be presented in each of the respective proposed Project
25 setting and characterization sections.

26 5.3 Methodology for Assessment of Environmental Effects

27 Describe the methods used to conduct the EA. The Application will contain a sufficient level of
28 baseline information to predict positive and negative impacts and will demonstrate the extent to
29 which negative impacts may be avoided, reduced or otherwise mitigated.

30 Describe the methods used to identify and evaluate potential environmental effects of the
31 proposed Project.

32 Describe the spatial and temporal boundaries of the assessment.

33 Document the assumptions, models, and information sources used, as well as information
34 limitations and associated levels of uncertainty to support all steps of the Application. Describe
35 the methodology used to arrive at those views where professional expertise is applied.

5.4 Traditional Use

The Application will use information, where available, on traditional and current use with respect to wildlife, birds, fish, climate, vegetation, soils, landscapes, country foods and cultural heritage and their cultural significance. The traditional use (TU) of First Nations will be incorporated in the identification of the Valued Ecosystem Components (VECs) and the reporting of baseline studies, effects assessments and mitigation measures. Data sources will be referenced within each section where TU is used. Reports on TU will be attached to the Application in the appendix subject to any confidentiality agreements as may be required by First Nations.

Where TU studies are not available or not provided to the Proponent in a timely manner, despite reasonable diligence, the Application will describe the efforts undertaken by the Proponent to obtain this information.

5.5 Development of Mitigation and Environmental Management Strategies

Describe the methods used, including public, First Nations, Nisga'a Nation and agency consultations, to identify and develop mitigation and management strategies to avoid, reduce, or otherwise mitigate potential adverse environmental effects of the proposed Project.

Describe potential compensation measures that may be offered to government where potential adverse effects of the proposed Project cannot be avoided or mitigated, and are predicted to be significant based on the methods used to determine the significance of residual effects. Describe the feasibility of the compensation measures and limitations to successful and effective implementation. Where direct compensation is not possible, or where there are limitations to the implementation of compensation, describe potential consequences to the valued ecosystem components or valued social components.

5.6 Valued Ecosystem Components

Describe the general criteria for identifying VECs that may be affected by the proposed Project, with input from the Nisga'a Nation, First Nations, and government agencies.

- Identify the methods used to predict and assess the effects of the proposed Project on VECs;
- Explain the criteria used to assign significance ratings to any predicted adverse effects;
- Include sufficient detail to perform the assessment over the temporal scope of development and distinguish between the environmental, health, social, heritage and economic parameters.
- Consider the evaluation of VECs in relation to Nisga'a Nation and First Nations considerations.

Consider the proposed Project's effects on VECs, a suggested initial list of which is provided in Table 5-1:

Scope of Environmental Assessment and Methodology

1
2

**Table 5-1
Proposed VECs**

Environmental Assessment Topic	Proposed VECs	BCEAA Assessment Category
Atmospheric Environment	1. Weather 2. Greenhouse Gases	Environment
Air Quality	1. Air Quality	Environment, Health
Surface Water Hydrology	1. Surface Water Quantity	Environment
Surface Water Quality	1. Surface Water Quality	Environment, Health
Groundwater Quantity	1. Groundwater Quantity	Environment
Groundwater Quality	1. Groundwater Quality	Environment
Aquatic Resources	1. Aquatic Resources	Environment
Fish and Fish Habitat	1. Dolly Varden 2. Rainbow Trout 3. Pacific Salmon 4. Fish Habitat 5. Hannah-Tintina Sockeye 6. Bull Trout 7. Coastal Cutthroat Trout 8. Steelhead	Environment
Transportation	1. Navigation 2. Aviation 3. Road/highway transportation	Social, Economic
Wetlands	1. Wetland Extent and Function	Environment
Terrestrial Ecosystems and Vegetation	1. Terrestrial Ecosystems 2. Culturally significant plants	Environment
Soils, Surficial Materials and Physiography	1. Soils 2. Soil Quality 3. Sensitive Soils	Environment
Geotechnical Stability	1. Terrain stability 2. Natural Drainages	Environment
Wildlife and Wildlife Habitat	1. Grizzly Bear 2. Moose 3. Mule Deer 4. American Marten 5. Fisher 6. Western Toad 7. Waterfowl 8. Forest Birds 9. Raptors 10. Black Bear (Kermode) 11. Wolverine 12. Mountain Goat	Environment
Archaeology and Heritage	1. Archaeological and heritage sites protected by the HCA	Heritage
Socio-Economic	1. Employment and Income Opportunities 2. Education, Skills and Training 3. Population, infrastructure and Services 4. Business Opportunities and Economic Development 5. Community Well-being	Social, Economic

(continued)

Scope of Environmental Assessment and Methodology

1
2

**Table 5-1
Proposed VECs (completed)**

Discipline	Proposed VECs	BCEAA Assessment Category
Land and Resource Use	1. Access 2. Quality of experience 3. Quantity of resources 4. Pine Mushroom 5. Timber Supply	Social, Economic, Heritage
Visual Resources and Aesthetics	1. Visual Quality	Social, Economic
Noise	1. Noise	Environment, Social
Human Health	1. Human health	Health

6. Baseline Studies, Potential Effects Assessment and Mitigation

Chapter 6 of the EAC Application will describe the existing environment of the proposed Project and evaluate the potential effects of the proposed Project and recommend measures to avoid, minimize or otherwise mitigate or manage potential adverse effects.

The description and characterization of the existing environment will be based on a review of available information and data sources, site investigations, as well as consultation with regulatory government agencies, the Nisga'a, First Nations, the public, and stakeholders.

Baseline studies will be conducted and reported on using accepted provincial or national standards of data acquisition and generally accepted procedures of good scientific practice. All existing reports and documents will be appropriately referenced.

6.1 Geophysical Environment

The Application will detail the geophysical aspects of the NTL proposed Project.

6.1.1 Baseline

6.1.1.1 Physiography and Topography

- Describe the terrestrial physiography and topographic features for the proposed Project area.
- Describe key terrain features, including mountain ranges, watercourses, wetlands and glaciated and post-glacial landforms.

6.1.1.2 Geology and Soils

- Describe bedrock geology, surficial geology and soils along the transmission corridor. Identify major faults and tectonic features, the distribution of soils with agricultural capability, and the distribution of high quality aggregate deposits in proximity to the transmission corridor.
- Provide geotechnical and soils/stability information along the transmission corridor.
- Provide a metal leaching – acid rock drainage risk assessment for areas of the transmission corridor where new bedrock will be exposed and/or excavated.

6.1.1.3 Surface Water Quality

- Summarize available baseline information on ambient water quality within each of the watercourses along the transmission corridor. Include all watercourses within the proposed Project area, as well as those that may be crossed or potentially affected during construction access to the transmission line. Identify potential reference areas for environmental effects monitoring, or consider the establishment of such sites where none exist.

- 1 • Compare baseline water quality parameters with appropriate guidelines and standards, such
2 as Canadian Council of Ministers for the Environment for Protection of Freshwater Aquatic
3 Life, and British Columbia Approved Water Quality Criteria.
- 4 • Identify licensed and if possible unlicensed surface water withdrawal locations transected
5 upstream by the transmission corridor and establish baseline water quality information by
6 reviewing existing data or collecting new data. Note the boundaries of any community
7 watersheds.

8 **6.1.1.4 Surface Water Hydrology**

- 9 • Describe hydrological flow regimes for each of the major watercourses, including major
10 wetlands along the transmission corridor. Provide hydrographs for major watercourses
11 crossed by the transmission corridor or within the footprint of the BQS.

12 **6.1.1.5 Hydrogeology and Groundwater**

- 13 • Describe the general hydrogeological and groundwater conditions along the transmission
14 corridor and in the area with potential to be affected by construction of the BQS.

15 **6.1.1.6 Geotechnical and Natural Hazards**

- 16 • Summarize existing or conduct new terrain stability mapping for the relevant areas of the
17 NTL corridor, consistent with the RIC (1996) methodology.
- 18 • Discuss seismic information, volcanology, evidence for historic, active and human-induced
19 land movements, rockfalls and snow avalanche hazards.
- 20 • Summarize risk of flood hazards at major stream crossings.

21 **6.1.2 Assessment of Potential Effects**

- 22 • Evaluate potential effects of increased sediment and erosion along the transmission corridor
23 and at the substations due to construction and operations. Include potential effects due to
24 right-of-way clearing and excavation during construction and right-of-way maintenance
25 during operation.
- 26 • Evaluate potential for induced slope failures along the entire transmission corridor, due to
27 construction and operation activities.
- 28 • Evaluate potential hydrological effects of diverting surface water courses (including ditches),
29 if applicable, to facilitate access during construction and operation along the transmission
30 corridor and at the BQS.
- 31 • Evaluate potential effects to surface and groundwater quality during all phases of site
32 preparation and construction, site restoration, operations and maintenance.
- 33 • Identify areas of potential concern due to high groundwater levels during site access
34 development, right-of-way clearing, and foundation excavation for transmission structures.
- 35 • Evaluate the general hydrogeological setting of the BQS site in relation to known flow
36 regimes.

- 1 • Identify potential effects to water quality on fisheries resources, aquatic biology and
2 community water supply systems due to steep terrain, unstable slopes and erodible soils.
- 3 • Identify potential effects on water quality during operation of the transmission line due to
4 vegetation management activities (*i.e.*, application of herbicide, pesticide, mechanical
5 removal of vegetation, *etc.*).
- 6 • Identify areas where bedrock will be exposed or excavated during site preparation, access
7 development, transmission tower foundation construction and substation construction and
8 evaluate general potential for metal leaching and acid rock drainage of representative
9 lithologies transacted by the right-of-way. Provide appropriate level of acid base accounting
10 characterization of high risk geologic units.
- 11 • Evaluate potential effects of the right-of-way on agricultural capability of soils in the Skeena
12 and Nass Valley, in particular where Agricultural Land Reserve lands are involved.
- 13 • Evaluate the potential for transmission line right-of-way clearing to increase the risk of
14 terrain instability and accelerated erosion events and their potential for impact on
15 watercourses and downslope biophysical, transportation infrastructure and land use values.
- 16 • Evaluate the risk of flood hazards at major stream crossings and potential for damage or
17 disruption during construction and operation of the transmission line.
- 18 • Identify areas where the transmission line corridor transects high quality aggregate resources.

19 6.1.3 Mitigation Measures

- 20 • Identify measures that may be required to avoid, minimize or otherwise mitigate potential
21 adverse geophysical effects of the proposed Project.

22 6.2 Atmospheric Environment

23 6.2.1 Climate

- 24 • Describe the climate and meteorology including seasonal variations of climatic conditions
25 along the proposed Project corridor. Relevant data collected by Environment Canada will be
26 provided.
- 27 • Describe the predominant wind conditions, including direction, velocity and seasonal
28 variations within the proposed Project area.
- 29 • Summarize available data and trends to document annual precipitation (rain, snow, fog)
30 conditions applicable to the proposed Project area. Identify data sources and locations of
31 precipitation recording stations.
- 32 • The Federal Provincial Territorial Committee on Climate Change and Environmental
33 Assessment, 2003 guidelines will be referenced in describing the climate.

34 6.2.2 Assessment of Potential Effects

- 35 • Climate information will be used to assess the potential effects of the environment on the
36 proposed Project as discussed in Chapter 7.

1 **6.3 Fish and Fish Habitat and Aquatic Biology**

2 **6.3.1 Baseline**

- 3 • Describe freshwater aquatic habitat and fisheries along the proposed Project corridor.
- 4 • Review existing data sources such as the Fisheries Information Summary System
5 administered by Department of Fisheries and Oceans Canada, Fish Wizard
6 (www.fishwizard.com), the Department of Fisheries and Oceans Canada database, UBC and
7 local libraries, and previous work conducted by BC Hydro and BCTC along 1L381 and
8 1L387, including previous work conducted by the Nisga'a Nation and, where available, First
9 Nations fisheries work.
- 10 • Characterize existing fisheries resources within each of the watercourses along the
11 transmission corridor including those watercourses that will need to be crossed to facilitate
12 construction access.
- 13 • Identify critical and sensitive habitats for spawning and rearing by fish, amphibians and
14 invertebrate species.
- 15 • Identify in-stream work windows and sensitive times of the year which are critical for
16 resident and anadromous populations of fish for watercourses along the transmission line
17 corridor.
- 18 • Identify data sources, data collection methods, and habitat surveys referencing appropriate
19 biophysical standards and protocols (*i.e.*, Resource Inventory Standards Committee,
20 administered by Integrated Land Management Bureau) used for characterizing baseline
21 freshwater aquatic habitat and fisheries resources along the transmission corridor.
- 22 • Identify potential for existence of threatened and endangered freshwater aquatic fish species
23 that are protected under Schedule 1 of the Species at Risk Act .
- 24 • Review rare and endangered species lists administered by the Committee on the Status of
25 Endangered Wildlife in Canada, and the Conservation Data Centre for red-and blue-listed
26 fish species and amphibians.
- 27 • Conduct field-level surveys as necessary to determine whether watercourses (creeks, streams,
28 lakes, rivers, wetlands, ditches) along the transmission corridor contain suitable habitat for
29 rare and endangered fish species.

30 **6.3.2 Assessment of Potential Effects**

- 31 • Assess potential effects on fish and fish habitat of construction and operation activities along
32 the transmission corridor, including development of site access roads that may be required to
33 facilitate construction access and transmission line installation.
- 34 • Evaluate potential effects on freshwater aquatic habitat, including creeks, streams, wetlands,
35 etc, associated with the modifications (including site access), and operations at substations.
- 36 • Based on review of available information and field reconnaissance-level surveys, determine
37 risk of potential effects on threatened or endangered fish species within each of the
38 watercourses during construction and operation of the transmission line and the BQS.

1 **6.3.3 Mitigation Measures**

- 2 • Recommend mitigation measures for avoiding, minimizing, or otherwise mitigating potential
3 adverse effects to fish and fish habitat.

4 **6.4 Wildlife and Wildlife Habitat**

5 **6.4.1 Baseline**

- 6 • Describe terrestrial habitat and wildlife resources within the study area to be defined for
7 assessing potential effects on wildlife.
- 8 • Describe areas of special ecological importance within the study area such as ecological
9 reserves and critical seasonal habitat for grizzly bear and ungulates.
- 10 • Identify, and consider data sources, data collection methods, and conduct wildlife surveys as
11 necessary, referencing appropriate biophysical standards and protocols (*i.e.*, Resource
12 Inventory Standards Committee), as outlined in the Wildlife and Wildlife Habitat Work Plan
13 to be prepared in conjunction with Canadian Wildlife Service and the British Columbia
14 Ministry of Environment. This may include previously conducted work provided by the
15 Nisga'a Nation and First Nations as well as input and Traditional Knowledge from
16 potentially affected First Nations.
- 17 • Identify and map locations of critical and sensitive areas potentially used by wildlife species,
18 including those used for nesting, breeding and foraging.
- 19 • Confirm sensitive times of the year which are critical for nesting and breeding activity, and
20 locations of sensitive habitat.
- 21 • Identify potentially threatened and endangered wildlife habitat and species that are listed
22 under Schedule 1 of the federal *Species At Risk Act*.
- 23 • Review rare and endangered species lists administered by the Committee on the Status of
24 Endangered Wildlife in Canada, and the Conservation Data Centre for red-and blue-listed
25 wildlife species (*e.g.*, Northern long-eared myotis (*Myotis septentrionalis*) and Keen's long-
26 eared myotis (*M. keenii*), and others).

27 **6.4.2 Assessment of Potential Effects**

- 28 • Evaluate potential effects of construction and operation activities, including development of
29 site access, noise from helicopter and heavy construction equipment, and increased Highway
30 37 traffic on wildlife and wildlife habitats.
- 31 • Evaluate potential effects on nesting, breeding, and foraging habitats.
- 32 • Evaluate the degree to which any loss of vegetation may affect browsing opportunities for
33 large mammals, and nesting and breeding habitat for small mammals and birds.
- 34 • Evaluate potential for increased wildlife, migratory bird and bat mortalities during
35 construction and operation due to incidents with construction vehicles and machinery,
36 increased potential for predation, line strikes or electrocutions, *etc.*
- 37 • Evaluate potential effects on raptor nests, heron rookeries, migratory bird staging and nesting
38 habitat, seasonal eagle congregations at salmon streams, and other critical habitats associated

1 with the construction and operation activities based on the methods and procedures to be
2 described in the Wildlife and Wildlife Habitat Work Plan.

- 3 • Based on the review of available information and field reconnaissance-level surveys as
4 described in the Wildlife and Wildlife Habitat Work Plan, determine risk of potential effects
5 on threatened and endangered wildlife species during construction and operation of the
6 transmission line, and at the BQS.

7 **6.4.3 Mitigation and Environmental Management**

- 8 • Recommend mitigation measures for avoiding, minimizing, or otherwise mitigating potential
9 adverse effects to wildlife and wildlife habitat.

10 **6.5 Terrestrial Ecosystems, Vegetation and Soils**

11 **6.5.1 Baseline**

- 12 • Describe terrestrial ecosystem, vegetation and soil resources within the study area to be
13 defined for assessing potential effects on vegetation and soils.
- 14 • Identify data sources, data collection methods and surveys to delineate vegetation units, and
15 to assess potential effects on vegetation resources as described in the Terrestrial Ecosystem,
16 Vegetation and Soils Work Plan to be prepared in conjunction with the British Columbia
17 Ministry of Environment.
- 18 • Prepare base maps to delineate vegetation units within the study areas using modified
19 Terrestrial Ecosystem Mapping methods developed by the Resource Inventory Standards
20 Committee as described in the Terrestrial Ecosystem, Vegetation Work Plan.
- 21 • Select areas of potential habitat for rare plants to focus the survey effort based on available
22 Predictive Ecosystem Mapping .
- 23 • Identify potential for existence of threatened and endangered vegetation species and plant
24 communities that are protected under Schedule 1 of the Species at Risk Act.
- 25 • Review rare and endangered species lists administered by the Committee on the Status of
26 Endangered Wildlife in Canada, and the Conservation Data Centre for red- and blue-listed
27 vascular plants, moss, lichens and plant communities.
- 28 • Confirm locations of red- and blue-listed species and plant communities where possible and
29 undertake field truthing of any unique plant communities or ecosystems identified through
30 aerial photograph analysis.
- 31 • Delineate locations along the proposed Project right-of-way where vegetation, including
32 commercial trees species, have been planted and are managed by private interests, the
33 Nisga'a, or First Nations.

34 **6.5.2 Assessment of Potential Effects**

- 35 • Provide an estimate (in hectares) of each ecosystem type to be newly cleared along the
36 transmission corridor and at the BQS.
- 37 • Evaluate temporal effects for re-establishment of vegetation along the transmission corridor
38 following completion of the construction for the new transmission line and the BQS.

- 1 • Evaluate fire hazard risk to the nearby communities and land uses resulting from invasive
2 weeds, accumulation of slash, and other potential fuel sources along the right-of-way.
- 3 • Determine if threatened or endangered plant species and plant communities will be
4 potentially affected by the construction or operation of the new transmission line and
5 substation.
- 6 • Evaluate the extent and type of threatened or endangered plant species and plant
7 communities that may be potentially disturbed, altered, or removed during the construction or
8 operation of the new transmission line and substation.
- 9 • Determine if sensitive plant communities will need to be removed or disturbed to facilitate
10 construction and operation of the new transmission line.
- 11 • Evaluate the potential impacts of transmission line right-of-way clearing on exposure of soils
12 to erosion by water, wind or snow avalanche processes.

13 **6.5.3 Mitigation Measures**

- 14 • Recommend mitigation measures for avoiding, minimizing, or otherwise mitigating potential
15 adverse effects to terrestrial ecosystems, vegetation and soils.

16 **6.6 Wetland Ecosystems**

17 **6.6.1 Baseline**

- 18 • Describe and evaluate the types and values of wetland ecosystems within the study area in
19 conjunction with aquatic, wildlife and terrestrial ecosystem studies, to be defined for
20 assessing potential effects on wetlands in accordance with the requirements of the federal
21 Policy of Wetland Conservation (Environment Canada, 2003), including previously
22 conducted work that may be provided by the Nisga'a Nation and, First Nations with input
23 and Traditional Knowledge from potentially affected First Nations.
- 24 • The characterization of wetland classes shall be in accordance with the procedure of
25 Mackenzie and Moran (2004) as follows:

26 **Table 6-1**
27 **Wetland Classes (Mackenzie and Moran, 2004)**

Wetland class	Description
Bog	Nutrient poor peatland
Fen	Nutrient medium peatland
Marsh	Mineral wetland
Swamp	Nutrient rich mineral wetland
Shallow open water	Permanently flooded wetland. Commonly represent transitional stage between lakes and marshes

- 28 • Identify data sources, data collection methods and surveys to delineate wetlands and to
29 perform a value and function assessment, and to assess potential effects on wetland resources
30 along the transmission corridor, as described in a Wetland Work Plan to be prepared after
31 consultation with the British Columbia Ministry of Environment.

1 **6.6.2 Assessment of Potential Effects**

- 2 • Provide an estimate in hectares of each type of wetland ecosystem along the transmission
3 corridor and at the BQS.
- 4 • Evaluate the extent and type of wetland that may be potentially disturbed, altered, or
5 removed during the construction or operation of the new transmission line and substation.

6 **6.6.3 Mitigation Measures**

- 7 • Recommend wetland management practices and applications along the right-of-way.
- 8 • Identify long-term strategies for controlling invasion of noxious weeds and non-native plants
9 as a means of preserving ecological integrity and function.

10 **6.7 Visual Landscapes**

11 **6.7.1 Baseline**

- 12 • Provide a description of viewsheds and landscape features within the proposed Project area,
13 including within the communities along the right-of-way.
- 14 • Identify cultural, heritage, recreational and high value commercial tourism viewpoints along
15 the right-of-way.

16 **6.7.2 Assessment of Potential Effects**

- 17 • Describe study methods and survey techniques for predicting changes to landscapes and
18 viewsheds.
- 19 • Evaluate changes to the existing viewsheds, during operation of the transmission line.
- 20 • Conduct selected viewshed impact modelling if appropriate.

21 **6.7.3 Mitigation Measures**

- 22 • Recommend mitigation measures for avoiding, minimizing, or otherwise mitigating or
23 managing potential adverse effects to visual landscapes.

24 **6.8 Archaeology and Heritage Resources**

25 **6.8.1 Baseline**

- 26 • Conduct a review of the Provincial Heritage Register, administered by the Archaeology and
27 Registry Services Branch of the Ministry of Tourism, Culture and the Arts, to determine
28 locations and characteristics of recorded archaeological sites within the vicinity of the
29 transmission line corridor.
- 30 • Involve First Nations in identifying archaeological and heritage resources.
- 31 • Involve the Nisga'a Nation in identifying archaeological and heritage resources.
- 32 • Conduct an Archaeological Overview Assessment to establish a potential ranking of
33 archaeological significance and to evaluate potential locations for effecting as-yet unrecorded
34 archaeological and heritage resources in the study area.

- 1 • Based on the Archaeological Overview Assessment, determine if an Archaeological Impact
2 Assessment (AIA) may be required in any portion of the study area

3 **6.8.2 Assessment of Potential Effects**

- 4 • If required for any portion of the study area, conduct an Archaeological Impact Assessment
5 (AIA) for that area consistent with existing Provincial guidelines and in accordance with the
6 provisions of any permit that may be required under the *Heritage Conservation Act* or other
7 legislation.
- 8 • The objectives of an AIA would be to search for and document archaeological sites within a
9 portion of the study area that may be in potential conflict with the proposed Project,
10 determine site significance, assess potential proposed Project impacts, and provide
11 recommendations for avoiding, reducing or otherwise mitigating potential adverse impacts.

12 **6.8.3 Mitigation**

- 13 • If archaeological sites are identified as a result of the AIA, the EAC Application will outline
14 mechanisms for avoidance or appropriate mitigation of potential adverse effects of the
15 proposed Project. The EAC Application will also provide procedures to be followed in the
16 event that archaeological materials are unexpectedly encountered during proposed Project
17 development. Archaeological Impact Management measures may include proposed Project
18 monitoring, if necessary, to ensure that potential adverse impacts to archaeological resources
19 which could not be predicted or evaluated prior to construction are addressed.
- 20 • Describe permitting requirements for mitigation or site alteration (if any).

21 **6.9 Land and Resource Use**

22 **6.9.1 Baseline**

- 23 • Provide a description of the land use plans and existing land and resource context for the
24 proposed Project area.
- 25 • Confirm locations of existing environmentally sensitive areas and Development Permit
26 Areas, and other local government regulations that may impact the proposed Project.
- 27 • Identify areas of resource tenures and active operations (*e.g.*, logging, mineral exploration or
28 mining for metals or aggregate, guide outfitters, commercial backcountry tourism, trapping,
29 fish hatcheries, tree nurseries, agriculture, other harvesting) in the proposed Project area.
- 30 • Identify any Crown or private land requirements for the proposed Project, including any
31 right-of-way acquisition or lands required for construction access along portions of the
32 transmission line corridor, and at the BQS.
- 33 • Identify the location and extent of lands which are Agriculture Land Reserves. Agriculture
34 Land Reserve lands will require an application under the *Agricultural Land Commission Act*
35 to the Agriculture Land Commission .
- 36 • Identify and confirm boundaries of all existing or proposed municipal, regional, provincial,
37 and federal parks and reserves in the proposed Project area.
- 38 • Describe existing recreational and tourism activities within the proposed Project area.

1 **6.9.2 Assessment of Potential Effects**

- 2 • Evaluate areas where construction and operation of the transmission line will encroach or
3 potentially affect environmentally sensitive areas.
- 4 • Describe the potential effects of the proposed Project on existing land uses and tenures.
- 5 • Evaluate potential constraints of acquiring additional property or right-of-way, if any, for the
6 transmission line.
- 7 • Evaluate areas where construction and operation activities may affect agricultural land uses
8 including grazing and crop production.
- 9 • Identify potential constraints and effects with respect to parks, ecological reserves and other
10 protected areas in the vicinity of the transmission line and substations.
- 11 • Evaluate potential effects of construction and operation activities on recreational
12 opportunities.

13 **6.9.3 Mitigation Measures**

- 14 • Recommend measures to avoid, minimize or otherwise mitigate potential effects on resource
15 and land use, including any affected protected areas within the proposed Project area during
16 construction and operation of the transmission line and the BQS.

17 **6.10 Transportation and Utilities**

18 **6.10.1 Baseline**

- 19 • Describe locations of existing and proposed transportation corridors intersected by the
20 transmission corridor. Include a map and description showing locations of existing and
21 proposed public roads, highways and railways.
- 22 • Describe locations of existing airports and flight paths within the proposed Project area.
- 23 • Describe the proximity of the transmission line and structures to the Bob Quinn airstrip.
- 24 • Describe locations of existing utilities including electricity transmission lines,
25 telecommunication facilities, water mains, sanitary and storm sewers, natural gas and oil
26 transmission and distribution pipelines which are parallel to, or intersected by the
27 transmission corridor.
- 28 • Describe locations of aerial transmission line crossings over navigable waters (within the
29 meaning of the *Navigable Waters Protection Act*), if any.
- 30 • Describe navigation use (commercial and recreational) of major bodies of water that will
31 have aerial crossings.

32 **6.10.2 Assessment of Potential Effects**

- 33 • Evaluate the suitability of existing public roads, highways, and railways to accommodate
34 access and egress of construction traffic in the proposed Project area.

Baseline Studies, Potential Effects Assessment and Mitigation

- 1 • Evaluate potential effects on traffic during construction and operating the transmission line
2 within the vicinity of airports and landing strips, including emergency landing strips along
3 the Highway 37 route, on land and water.
- 4 • Evaluate potential constraints to be managed during construction associated with working
5 alongside and in the vicinity of other utilities including, but not limited to, natural gas, oil,
6 telecommunication cable, sanitary and storm sewer, and water supply infrastructure.
- 7 • Evaluate whether construction and operation of the transmission line and structures could
8 interfere with aerial or waterborne navigation.
- 9 • Evaluate potential effects of the construction and operation of the transmission line and
10 structures on the existing Canadian National Railway railway line.

6.10.3 Mitigation Measures

- 12 • Delineate locations of other utilities along the transmission corridor to avoid potential effects
13 during construction of the new transmission line.
- 14 • Comply with applicable regulatory requirements for notifying transportation authorities and
15 other utilities of construction activities.
- 16 • Identify measures to avoid, minimize or otherwise mitigate conflicts with transportation
17 facilities and other utilities, associated with the construction of the transmission line.
- 18 • Describe public notification and communication measures to advise local residents,
19 commercial aircraft carriers and other utility owners of possible safety hazards and public
20 and worker safety precautions during construction of the transmission line.
- 21 • Identify engineering design standards and criteria for maintaining specified height
22 requirements of transmission lines above navigable waters.
- 23 • Recommend preferred periods of the year for undertaking construction activities to avoid,
24 minimize or otherwise mitigate potential effects on recreational and commercial vessels
25 within navigable waters during construction along the transmission corridor.
- 26 • Describe proposed marine traffic communications protocols in accordance with Transport
27 Canada requirements.
- 28 • Describe the regulatory requirements for identification of all aerial crossings over navigable
29 waterways.
- 30 • For each crossing where there is a potential impact on navigation, provide a plan consistent
31 with the identified vessel use (and, where appropriate, with Transport Canada's requirements
32 under the *Navigable Waters Protection Act*) including watercourse name and number (if
33 applicable), crossing width, height to transmission conductors measured from high water
34 mark, depth of the water, latitude and longitude, height and location of the structures.

1 **6.11 Public Health**

2 **6.11.1 Public Health Baseline Parameters**

- 3 • Provide a description of baseline factors affecting the public health settings in the
4 communities within the appropriate proposed Project study area.

5 **6.11.1.1 Audible Noise**

- 6 • Characterize audible baseline noise levels in each of the communities within the appropriate
7 proposed Project study area.
- 8 • Summarize the nature of audible noise concerns raised by the public as related to the
9 operation and maintenance of the existing transmission lines and substations. Transmission
10 lines are associated with corona noise audible as broadband (1 Hz to 20 kHz) crackling or
11 hissing sound modulated by foggy or dusty conditions.
- 12 • Characterize the potential major sources of audible noise related to construction activities.
- 13 • Evaluate how the construction and operation of the transmission line will change the noise
14 environment.

15 **6.11.1.2 Electric and Magnetic Fields**

- 16 • Describe anticipated range of typical electric and magnetic fields exposures for the populated
17 areas adjacent to the proposed line.

18 **6.11.1.3 Domestic Water Quality and Supply**

- 19 • Review the groundwater well database, maintained by Ministry of Environment, of registered
20 private wells (both private and commercial) within the proposed Project area.
- 21 • Identify areas within the study area that receive domestic water supplies from groundwater
22 wells or surface water where the upstream surface catchment area intersects the transmission
23 corridor.
- 24 • Review the provincial aquifer classification system to describe potential vulnerability of the
25 aquifers within the study area to contamination.
- 26 • Based on the available information from existing groundwater data, describe typical time-of-
27 travel estimates, transmissivity rates, and hydraulic gradients for groundwater movement in
28 any potentially vulnerable aquifers within the proposed Project area.

29 **6.11.1.4 Country Foods**

30 Identify a list of plants and fungi which may be collected within the study area and used for
31 medicinal or nutritional purposes. An evaluation of the potential impacts to the consumable
32 vegetation will be conducted.

33 **6.11.1.5 Air Quality**

- 34 • Provide a summary of ambient air quality levels to characterize baseline air quality
35 conditions in each of the communities and jurisdictions in the proposed Project area. Include
36 PM_{2.5} and PM₁₀ and dustfall baseline measurements.

- 1 • Identify potential fixed and transient emission sources to be used during construction and
2 operation activities for the transmission line and at the substations.
- 3 • Identify sources of air emissions and potential air quality effects from other industries and
4 activities in the proposed Project area.
- 5 • In conjunction with climatic studies, identify the areas of potential adverse changes in air
6 quality.

6.11.2 Assessment of Potential Effects

- 8 • Evaluate potential for increased audible noise in populated areas related to the construction
9 and operation of proposed Project facilities, relative to ambient background noise levels.
- 10 • Evaluate potential for increased audible noise from operation of the transmission lines in
11 populated areas under various atmospheric conditions (*e.g.*, rain, fog, dust, temperature
12 extremes).
- 13 • Summarize the present state of scientific and public health research data, conclusions and
14 policy statements with respect to potential health effects from exposure to electric and
15 magnetic fields exposure levels associated with the proposed Project relative to the existing
16 baseline setting.
- 17 • Provide existing and future estimated electric and magnetic fields levels at key receptors
18 closest to the right-of-way, such as schools, medical clinics and day-care facilities.
- 19 • Evaluate potential vulnerability of domestic groundwater supply wells, springs and surface
20 community water supplies (including reservoirs) to contamination associated with the
21 construction and operation of the new transmission line and the BQS.
- 22 • Evaluate potential for effects on air quality during construction of overhead transmission
23 lines from construction machinery and from fugitive dust during right-of-way clearing and
24 site preparation and increased highway construction traffic.
- 25 • Quantitatively evaluate the potential for effects on the quality of the country foods locally
26 harvested from the transmission corridor.

6.11.3 Mitigation Measures

- 28 • Identify intended measures to avoid, minimize or otherwise mitigate potential public health
29 and safety effects of construction and operation of the proposed Project that may be
30 identified.

6.12 Socio-Economic

6.12.1 Socio-Economic Baseline

Community Population and Demographics

- 34 • Document relevant population and demographic characteristics, and socio-economic profiles
35 of study communities, municipalities, provincial and regional jurisdictions, the Nisga'a
36 Nation and First Nations along the study area.

Social

- 2 • Provide social profiles of the Nisga'a Nation and First Nations in the proposed Project study
3 area.
- 4 • Recognize and consider culturally significant values and perspectives of the Nisga'a Nation
5 and First Nations in the proposed Project study area.

Economic, Employment and Labour Market Overview

- 7 • Describe regional and community labour force characteristics including employment
8 participation, education and skills levels
- 9 • Describe employment and labour market characteristics of the Nisga'a Nation and First
10 Nations wherever data is available.

Housing

- 12 • Provide a description of existing housing and accommodation supply, indicating where
13 construction trade workers and substation crews may stay during construction.

Property Values

- 15 • Provide a range in residential property values along and adjacent to the existing and proposed
16 right-of-way.

Public Support and Emergency Services

- 18 • Provide a brief description of existing emergency support services, such as emergency
19 response (fire, ambulance, police), hospitals, and medical facilities, available to respond and
20 support an emergency related to construction and operation of the transmission line and its
21 associated substations.

6.12.2 Assessment of Potential Socio-Economic Effects

Socio- economic Effects

- 24 • Predict the potential proposed Project effects on the population, demographics, social,
25 cultural, economic and health characteristics of study communities, local governments,
26 provincial and regional jurisdictions, the Nisga'a Nation and First Nations along the
27 transmission corridor.

Employment and the Labour Market

- 29 • Predict potential effects on the following:
 - 30 • Regional and community education and skill levels
 - 31 • Regional and community labour force, employment participation and business
32 opportunities
 - 33 • Nisga'a Nation and First Nations labour force, employment participation and business
34 opportunities.
- 35 • Determine whether transmission line operation and maintenance crews can be locally
36 sourced or will involve non-resident specialists.

Human Effects of Environmental Change

- Assess the potential effects, if any, of environmental changes such as radio interference, noise, visual quality and use of herbicides on the study area communities,

Housing

- Evaluate predicted accommodation needs for the construction crews based on work force needs (direct employment) compared with baseline conditions in each of the communities traversed by the transmission corridor.

Property Values

- Evaluate potential effects of the proposed Project on property market values along the right-of-way, due to the transmission line.

Government Revenues and Economics

- Predict potential effects on regional and community economies.
- Predict potential direct and indirect economic effects of the proposed Project such as increased local, provincial or federal government revenues, construction costs, worker employment and income.

Emergency Services

- Evaluate the adequacy of local emergency response services including fire, ambulance, police, hospitals, and medical facilities to address potential emergency situations during construction and operation of the transmission line.
- Consider emergency preparedness and response capabilities, personnel, and technical resources of these services.

6.12.3 Mitigation Measures

- Identify measures to avoid, minimize or otherwise mitigate against potential adverse socio-economic effects of the proposed Project.

6.13 Summary of Nisga'a Nation Considerations

The environmental assessment will be carried out in a manner that complies with the Nisga'a Final Agreement.

The Application will describe Nisga'a Nation interests along the proposed transmission line corridor identified through consultation and will describe the potential effects of construction and operation activities on those interests.

6.13.1 Consultation, Issues Identification and Resolution

- Summarize how the Nisga'a Lisims Government was consulted.
- Describe the process through which issues, concerns and interests were identified, incorporated into the proposed Project's environmental assessment and mitigation plans.
- Document comprehensive details of communications, consultation, issues tracking and resolution in Section 2: Information Distribution and Consultation and respective appendices in the Application.

1 **6.13.2 Summary of Potential Effects**

2 This section of the application will summarize the potential environmental, social, and economic,
3 health and heritage effects of construction and operation of the proposed Project on interests
4 identified during consultation with the Nisga'a Nation.

5 **6.13.3 Policies, Management and Mitigation Plans**

- 6 • Identify mitigation measures and management strategies to avoid minimize or otherwise
7 mitigate potential effects of construction and operation activities on interests identified
8 during consultation with the Nisga'a Nation.

9 **6.14 Summary of First Nations Considerations**

- 10 • The Application will describe First Nation interests along the proposed transmission line
11 corridor identified through consultation and will describe the potential effects of construction
12 and operation activities on those interests. The First Nations are:

- 13 • Tahltan First Nation;
14 • Gitxsan;
15 • Skii km Lax Ha;
16 • Kitsumkalum First Nation;
17 • Gitanyow Hereditary Chiefs;
18 • Kitselas First Nation;
19 • Metlakatla First Nation; and
20 • Lax Kw'alaams First Nation.

21 **6.14.1 Consultation, Issues Identification and Resolution**

- 22 • Summarize how First Nations were consulted.
23 • Describe the process through which issues, concerns and interests were identified and
24 incorporated into the proposed Project's environmental assessment and mitigation plans.
25 • Document comprehensive details of communications, consultation, issues tracking and
26 resolution in Section 2: Information Distribution and Consultation and respective appendices
27 in the Application.

28 **6.14.2 Traditional and Current Use**

- 29 • Subject to the stipulations and requirements of confidentiality or Traditional Knowledge
30 agreements, an overview of historic and current uses of lands and resources by relevant First
31 Nations in the study area will be described, including species of cultural importance.
32 Information on types of uses, location, frequency and seasonality of use as well as predicted
33 changes to use due to construction or operation of the proposed Project will be presented.
34 Where available and possible, a spatial representation of non-confidential places or features
35 of cultural significance to the First Nations that may be affected by construction or operation
36 of the proposed Project will be provided.

Baseline Studies, Potential Effects Assessment and Mitigation

- 1 • Reports on traditional and current land use will be attached to the Application in the
2 appendix subject to confidentiality agreements as may be required by each First Nation.
- 3 • Where traditional or current land use is not available or not provided to the Proponent in a
4 timely manner, despite reasonable diligence, the Application will describe the efforts
5 undertaken by the Proponent to obtain this information and will provide a summary of desk
6 based research of publicly available ethnographic and historic documentation.

6.14.3 Summary of Potential Effects

8 This section of the application will summarize the potential environmental, social, economic,
9 health and heritage effects of construction and operation of the proposed Project on interests
10 identified during consultation with First Nations.

6.14.4 Policies, Management and Mitigation Plans

- 12 • Identify mitigation measures and management strategies to avoid, minimize or otherwise
13 mitigate potential effects of construction and operation activities on interests identified
14 during consultation with First Nations.

7. Effects of the Environment on the Project

Chapter 7 of the EAC Application will assess the effect(s) of the environment on the proposed Project and activities forming part of the proposed Project.

- Describe the effect of the full range of climate conditions (including extreme weather events, precipitation, extreme temperature, freeze-thaw cycles, wind, snow and lightning) on the proposed Project.
- Describe and assess how potential for climate extremes, and other extreme events such as forest fire, seismic activity, snow and rock avalanche, and flood could affect the integrity of the transmission line and support structures and substation.
- Identify measures to mitigate against moderate to high risk events.

7.1 Transmission Lines

7.1.1 Geophysical Effects

7.1.1.1 Natural Hazard Assessment

- Evaluate potential effects of natural hazards on the transmission line.
- Evaluate areas of potential seismic risk, slope instability, debris flows, snow avalanche run-out zones and areas of rockfall hazards based on the soils conditions and geological features along the transmission line corridor.
- Evaluate geotechnically unstable areas along the transmission corridor, as well as at the BQS. Identify locations and areas that could potentially affect the integrity of the transmission line such as ravines, gullies, rockfall hazards, and geotechnically unstable areas.
- Evaluate potential for geotechnical hazards and constraints associated with modifications required at substations.

7.1.1.2 Mitigation Measures

- Identify and recommend engineering measures to avoid, minimize or otherwise mitigate potential effects due to unstable soils and natural hazards during construction and operation of proposed Project facilities.

7.1.2 Hydrological Effects

7.1.2.1 Hydrological Assessment

- Identify potential constraints and areas where flooding and seasonally high flows within the watercourses along the transmission corridor will need to be managed during construction of the proposed Project facilities.
- Evaluate seasonal flows (including peak flows) that can be expected in each of the watercourses along the transmission corridor, and where there may be areas of potential flooding risk to transmission line structures, substations or cable terminals.

- 1 • Identify locations of potential flooding risk, and where seasonal flow fluctuations may
2 potentially affect construction procedures, as well as selected location and design of
3 proposed Project facilities.

7.1.2.2 Mitigation Measures

- 4 • Identify and recommend measures to protect proposed Project facilities from risk of flooding.
5

7.1.3 Wildfire Hazards

7.1.3.1 Wildfire Hazard Assessment

- 8 • Evaluate fire hazard risk to the transmission line infrastructure, and to nearby communities
9 and land uses resulting from the accumulation of woody fuel sources along the right-of-way.
10 • Evaluate the fire hazard risk to the transmission line infrastructure and substation from
11 increased potential risk in adjacent forest susceptible to disease or cumulative forest floor
12 fuel loading.
13 • Review historic wildfire occurrence records for the transmission line route to develop a
14 hazards rating assessment map.

7.1.3.2 Mitigation Measures

- 15 • Identify vegetation management practices and applications along the right-of-way which
16 reduce or otherwise mitigate the risks of potential wildlife fire hazards.
17

7.1.4 Meteorological and Atmospheric Effects

7.1.4.1 Wind

- 18 • Evaluate potential effect of wind on the construction and operation of the proposed Project
19 facilities.
20
21

7.1.4.2 Precipitation

- 22 • Evaluate potential effects of precipitation (including ice and snow loading) on the
23 construction and operation of the proposed Project facilities.
24

7.1.4.3 Mitigation Measures

- 25 • Identify engineering design and construction criteria and standards to avoid, minimize or
26 otherwise mitigate potential effects from extreme wind, snow, and ice events.
27

1 **8. Accidents and Malfunctions**

2 Chapter 8 of the EAC Application will address potential environmental effects of accidents and
3 malfunctions following implementation of the mitigation measures (*i.e.*, post-mitigation), that
4 may occur in connection with the proposed Project as required by Section 16 (1) of CEAA.

5 Identify the probability and potential magnitude of an accident and / or malfunction associated
6 with the proposed Project, including the likelihood of a failure of a major proposed Project
7 component. The assessment will link and describe the outcome of accidents and / or
8 malfunctions with a probability analysis of consequential impacts to the environment.

9 Identify any contingency plans and response options, and document all assumptions, model data
10 sources and model outputs.

11 **8.1 Transmission Lines**

12 **8.1.1 Electrical Hazards and Mitigation**

- 13 • Identify potential risk of accidents and malfunctions due to electrical hazards to construction
14 personnel and the general public during construction and operation of the transmission lines
15 and substations.
- 16 • Identify mitigation measures consistent with industry standard safety procedures and
17 protocols to minimize potential for environmental effects and effects on public safety
18 associated with electrical hazards.

19 **8.1.2 Terrain Hazards and Mitigation**

- 20 • Identify potential risk of accidents and malfunctions due to terrain hazards and associated
21 construction activities (*e.g.*, right-of-way clearing, tree felling, transmission structure
22 assembly, helicopter-supported construction).
- 23 • Identify mitigation measures consistent with industry standard safety procedures and
24 protocols to minimize potential for environmental effects and effects on public safety
25 associated with accidents and malfunctions due to work within steep terrain.

26 **8.1.3 Air and Ground Traffic Hazards and Mitigation**

- 27 • Identify potential risk of air safety and traffic-related accidents and malfunctions to public
28 safety due to requirements to access sections of the right-of-way from public and private
29 roads, and due to requirements to establish a new overhead transmission line along an
30 important regional aircraft flight route.
- 31 • Recommend procedures and protocols to be implemented to minimize potential conflicts
32 with construction traffic and commercial light aircraft air carriers.

1 **8.2 Substations**

2 **8.2.1 Hazardous Material Handling**

- 3 • Identify potential risk of accidents and compromise of containment during construction and
4 handling of fuel and other hazardous materials at Skeena and the BQS.
5 • Provide recommendations for minimizing risk of fuel and hazardous material spills through
6 implementation of spill prevention and emergency response procedures.

7 **8.2.2 Malfunctions**

- 8 • Identify typical major substation components involved in malfunctions and provide typical
9 response procedures.

10 **8.3 Access**

11 **8.3.1 Access During Construction**

- 12 • Identify potential risk of accidents and malfunctions involving the use, construction or
13 decommissioning of access roads, or use of aerial support, during the construction phase.

14 **8.3.2 Access During Post-Construction**

- 15 • Identify potential risk of accidents and malfunctions involving the use and maintenance of
16 access roads or use of aerial support during the post-construction and phase.

9. Significance of Residual Effects

Chapter 9 of the EAC Application will outline the procedures for assessing residual effects after mitigation measures have been applied as described in “*Reference Guide: Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects*” (Canadian Environmental Assessment Agency; http://www.ceaa.gc.ca/013/0001/0008/guide3_e.htm#Reference%20Guide).

Document the methods used to assess the significance of the residual effects.

Residual effects are defined as environmental changes that result from the proposed Project after mitigation measures have been incorporated. As much as possible, the significance of residual effects is quantified with an assessment of the level of effect according to defined parameters and evaluation criteria.

It is intended that application of defined criteria will enable a systematic and objective determination of significance, which is both defensible and transparent, and which reduces or eliminates biases in deciding the importance of adverse effects following mitigation.

The broad generic and specific criteria pertaining to individual environmental components include:

- Magnitude (*e.g.*, scale, intensity, spatial extent, frequency, duration);
- Direction of change (*e.g.*, positive or negative);
- Reversibility / resilience; and
- Uncertainty (*e.g.*, degree of confidence, new technology, knowledge limitations).

Significance criteria will be reviewed in consultation with agency and affected First Nations.

9.1 Transmission Lines, Substations and Access

- Tabulate and summarize significance of residual effects after mitigation measures have been applied to each of the geophysical, biological, cultural, socio-economic, and public health disciplines.
- Provide a determination that residual effects are either “not significant” or “significant”.

10. Cumulative Environmental Effects Assessment

Chapter 10 will outline an assessment of potential cumulative environmental effects of the NTL proposed Project.

The EAC Application will include an evaluation of the cumulative environmental effects associated with residual impacts that are likely to result from the proposed development and how they may combine cumulatively with residual effects from other past, present and imminent relevant projects. The criteria for the scoping of other relevant projects will be clearly specified. The scoping of projects and assessment of cumulative effects will be conducted using the protocol identified in *A Reference Guide for the Canadian Environmental Assessment Act – Addressing Cumulative Environmental Effects* (Federal Environmental Assessment Review Office (FEARO) 1994) and the *Cumulative Environmental Assessment Practitioner’s Guide* (Canadian Environmental Assessment Agency 1999).

The Application should also report and describe relevant projects. The Application will include a rationale for excluding any relevant projects from the cumulative effects assessment. The following projects or human activities are initially identified as possible candidates for inclusion in the cumulative environmental effects assessment:

- Eskay Creek Mine
- Galore Creek Mining Project (EA Certificate)
- Forrest Kerr Hydro-electric Run of River Power Project (EA Certificate)
- Red-Chris Copper-Gold Mine (EA Certificate)

The Application will assess cumulative environmental effects in relation to the appropriate VECs where residual effects have been identified.

Explicit documentation of the assumptions, models, and information sources used as well as information limitations and associated levels of uncertainty will support all steps of the cumulative effects assessment in the Application. The analysis will present data and analyses that are verifiable in nature and quantitative, where data are available. In the absence of verifiable knowledge, best professional judgment or expert opinion should be used, whether that is from traditional or scientific sources. Any mitigation measures identified for cumulative effects and follow-up programs will be included in the discussion of cumulative effects.

The approach and methodologies used to identify and assess cumulative environmental effects will be explained. This will include a description of the scope, temporal and spatial boundaries to be used, criteria for defining significance criteria and assessment of significance.

Identify the mitigation, monitoring, and management procedures that are technically and economically feasible to reduce the cumulative effects.

11. Environmental Management Program

Chapter 11 of the EAC Application will outline the plans for environmental management during construction, operation and decommissioning of the Proposed Project. The Application will include a framework of the construction Environmental Management Plan (EMP) for the proposed Project, to be finalized following completion of the EAC Application as a condition of proposed Project approval. Most of the details of the construction EMPs will be developed during the detailed design phase and during consultations with the relevant permitting agencies and First Nations prior to construction of the proposed Project. The Application will also include a description of the BCTC Environmental Management Program for the transmission system in BC which will be implemented for the proposed Project as applicable to operations of the new transmission system.

EMPs are documents that describe the environmental practices and procedures to be applied during the construction of the proposed Project. The EMPs will outline BCTC's approach to proposed Project planning and development of protection measures to mitigate adverse environmental and socio-economic effects.

Describe how BCTC will ensure that commitments in the EMPs will be binding on those acting for BCTC including contractors and sub-contractors.

11.1 Construction Environmental Management

The Construction EMPs may include, for example, the following:

- Archaeological Impact Management Plan;
- Archaeological Chance Find Recovery Procedure;
- Fisheries Habitat Protection, Mitigation, and Compensation Plan;
- Wildlife Resource and Habitat Protection and Mitigation Plan;
- Sediment and Erosion Control Plan;
- Spill Prevention and Emergency Response Plan;
- Construction Waste Management Plan;
- Air Quality and Dust Control Plan;
- Noise Management Plan;
- Landscape Design and Site Restoration Plan;
- Soil Salvage and Storage Plan;
- Contaminated Soils Management Plan;
- Vegetation Management Plan (including measures addressing invasive plants);
- Traffic Safety Management Plan;

- 1 • Access Management Plan;
- 2 • Agency Reporting and Environmental Supervision Plan;
- 3 • Forest Fire Emergency Response Plan; and
- 4 • Health and Safety and Emergency Medical Response Plan.

11.2 Operational Environmental Management Program

6 The following existing BCTC and BC Hydro Environmental Management and Operational
7 Procedure documents would comprise the Operational Environmental Management Program for
8 the Proposed Project:

- 9
- 10 • BCTC’s Environmental Responsibility Principles;
- 11 • BCTC’s Environmental Management System (EMS);
- 12 • BCTC’s Environmental Responsibility Principles;
- 13 • BCTC’s Environmental Management System (EMS);
- 14 • BCTC Spill contingency plans for substations and capacitor stations;
- 15 • BCTC Spill Response Procedures;
- 16 • BCTC Emergency Response Procedures;
- 17 • BCTC’s Integrated Vegetation Management Plan for Control of Vegetation within
18 Transmission Rights-of-Way (IVMP);
- 19 • Pest Management Plan for Control of Weeds in BCTC Facilities;
- 20 • Approved Work Practices for Managing Riparian Vegetation (AWPRV);
- 21 • BCTC Wildfire Act and Wildfire Regulation Requirements;
- 22 • BCTC’s Vegetation Maintenance Standard – Debris Management;
- 23 • BCTC’s Transmission Maintenance Standard – Requirements and Guidelines for Burning on
24 and near Rights-of-Way;
- 25 • BCTC’s Power System Safety Protection (PSSP) System; and,
- 26 • BC Hydro’s Safety Practice Regulations (SPR).

27 The contents of these documents will be provided. Where applicable, these guidelines, BMPs,
28 and procedures would be reviewed and updated to reflect potential changes as a result of the
29 Proposed Project.

11.3 Conceptual Decommissioning Management Plan

31 A Conceptual Decommissioning Management Plan will be prepared prior to future
32 decommissioning activities in accordance with the regulatory regime and environmental
33 sensitivities at that time and will likely include EMPs relating to:

- 1 • Environmental Planning and Mitigation Measures,
- 2 • Socio-economic Mitigation Measures, and
- 3 • Public Health and Safety Procedures.

11.4 Reporting

- 5 • Include a framework for tracking and reporting the activities and achievements under the
- 6 various EMPs and list the relevant permitting agencies, the Nisga'a Lisims Government and
- 7 affected First Nations who will be provided copies of the EMP reports.

12. Environmental Monitoring and Follow-up

Chapter 12 of the EAC Application will provide the framework for environmental monitoring and follow-up programs to be undertaken during construction and operation of the proposed Project. As defined by Section 16 (1) of CEAA, the objectives of the environmental monitoring and follow-up programs will be to:

- Verify the accuracy of the environmental assessment of the proposed Project; and
- Determine the effectiveness of the measures taken to mitigate the adverse environmental effects of the proposed Project.

For each of the two major proposed Project components, transmission lines and substations, environmental monitoring programs will be outlined to evaluate the performance of the environmental mitigation and compensation strategies in achieving regulatory compliance, and in mitigating adverse effects.

For the planned construction period, outline the seasonal environmental operating “windows” or constraints in respect of fish and wildlife breeding, rearing or migration behaviours and needs.

12.1 Pre-Construction Environmental Monitoring

- Describe the framework for an environmental monitoring program to inspect and evaluate the conditions of the proposed right-of-way, construction site and laydown areas, proposed access roads and proposed substation location prior to and in the season during which construction is to commence.
- Outline the framework for reporting and responding to unforeseen major changes in the condition of the terrain on which new transmission and supporting infrastructure is planned to be constructed.

12.2 Construction Environmental Monitoring

- Describe the framework for an environmental monitoring program to inspect and evaluate the implementation and performance of mitigation measures and habitat compensation strategies to be undertaken during the construction phase of the proposed Project.
- Outline the framework for reporting mechanisms for the environmental monitoring program, including which agencies and First Nations are to receive copies of environmental reports.
- Outline the framework for communication protocols with landowners and other tenure holders.

12.3 Post-Construction Environmental Monitoring

- Describe the framework for a post-construction, environmental monitoring program to inspect and report on the survival and productivity of any compensatory habitats developed through various means of creation, enhancement, and / or restoration for the facilities and components of the proposed Project.

13. Conclusions and Commitments

Chapter 13 of the EAC Application will provide a clear conclusion of the environmental assessment, with particular reference to the potential adverse environmental, economic, social heritage and health effects predicted to occur during construction and operation of the proposed Project. The conclusion chapter will also provide a clear summary of Nisga'a Nation and First Nations' concerns, and how these concerns have been incorporated into the overall design and mitigation measures for the proposed Project. The conclusion chapter will also provide a clear summary of environmental, social, economic, heritage and health benefits predicted to occur as a result of the construction and operation of the proposed Project.

The conclusions will clearly distinguish potential effects of each of the following proposed Project components:

- Transmission lines;
- Substations; and
- Access roads.

The Application will also provide commitments for follow-up monitoring that would be required to evaluate and report on the success of the mitigation measures, habitat compensation plans, and performance of the EMPs to minimize potential adverse effects.

13.1 Conclusions

13.1.1 Transmission Lines

- Provide a summary of potential environmental effects and recommended mitigation measures, habitat compensation strategies, and EMPs related to the construction and operation of the 287 kV transmission line.
- Indicate whether this proposed Project component is predicted to cause significant adverse environmental, social, economic, heritage or health effects.
- Indicate whether there are predicted effects from the environment on the transmission lines such as natural hazards and extreme climatic events.

13.1.2 Substations

- Summarize potential environmental effects and recommended mitigation measures, habitat compensation strategies, and EMPs related to the construction and operation of the BQS.
- Indicate whether this proposed Project component is predicted to cause significant adverse environmental, social, economic, heritage or health effects.
- Indicate whether there are predicted effects from the environment on the BQS as natural hazards and extreme climatic events.

1 13.1.3 Access

- 2 • Summarize potential environmental effects and recommended mitigation measures, habitat
3 compensation strategies, and EMPs related to the construction, use and restoration of new
4 site development, access roads and stream crossings.
- 5 • Indicate whether this proposed Project component is predicted to cause significant adverse
6 environmental, social, economic, heritage or health effects.
- 7 • Indicate whether there are predicted effects from the environment on the new access
8 infrastructure such as erosion, natural hazards and extreme climatic events.

9 13.2 Commitments

- 10 • Summarize the commitments made to avoid, minimize or otherwise mitigate potential effects
11 of the proposed Project where current standards of due diligence and best practices will not
12 result in satisfactory mitigation.
- 13 • *First Nations and Nisga'a Lisims Government Consultation:* summarize commitments
14 developed through consultation with Nisga'a Lisims Government and First Nations that were
15 made to avoid, reduce or otherwise mitigate potential effects of the proposed Project.
- 16 • *Public Consultation:* summarize commitments developed through consultation with public
17 stakeholders that were made to avoid, reduce or otherwise mitigate potential effects of the
18 proposed Project.

1 **14. List of References and Supporting**

2 **Documentation**

3 Chapter 13 of the EAC Application will list references and personal communications cited in the
4 Application arranged in alphabetical order in accordance with standard reference formats.

15. Appendices

2 The Appendices will contain:

- 3 • Copies of technical assessments;
- 4 • Biophysical Assessments;
- 5 • Socio-economic/cultural Assessments;
- 6 • Public Health Assessments;
- 7 • Geotechnical and Natural Hazards Assessment;
- 8 • Nisga'a Lisims Government Consultation Plan and Tracking Logs;
- 9 • First Nations Consultation Plan and Tracking Logs;
- 10 • Public Consultation Plan and Communications Tracking Log;
- 11 • Nisga'a Lisims Government Consultation Reports;
- 12 • First Nations Consultation Reports;
- 13 • Public Consultation Reports; and
- 14 • Proponent's Commitments and Assurances.
- 15 • A tabulated summary of BCTC's "Proponent's Commitments and Assurances" for the
- 16 construction and operation of the NTL proposed Project, which will consist of an itemized
- 17 summary of environmental mitigation and monitoring measures to be implemented during
- 18 detailed design, construction and /or operation. A draft of the commitments and assurances
- 19 will be included as part of the EAC Application, and will be modified in response to
- 20 comments received by regulatory agencies, public, and First Nations during the Application
- 21 review phase.