

Province of British Columbia

# Clean Energy Project Development Plan Information Requirements

**July 2011**

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# INTRODUCTION

## USING THE DEVELOPMENT PLAN INFORMATION REQUIREMENTS

The intent of the Development Plan Information Requirements is to provide a provincially consistent suite of information requirements that are typically needed to support provincial decision-making for Clean Energy Project Development Plans. It is also intended to provide consistent use of terms, language, wording and format for all CEP Development Plans.

Proponents will use the generic information requirements to build a project-specific Development Plan Template. This Template will then be submitted to the Regional Project Team (RPT) for review and refinement. Proponents and the RPT may need to refer the Template to other parties to determine whether all necessary information requirements are adequately covered in the Template. Once the RPT is satisfied that all information required for the Project is captured in the Template, the Project Lead will inform the Proponent that the Template has been approved by the RPT and is ready for use.

The Proponent will then commence the work needed to populate the Template and prepare their Development Plan. The Development Plan is intended to address all provincial information requirements needed to assess the Project and make decisions in accordance with provincial statutes, regulations and policies.

Detailed advice on how to use the Development Plan Information Requirements and develop a project-specific Development Plan Template is provided in the *User Guides for Proponents*, which can be found in the [CEP Guidebook](#). Prior to initiating work on a Development Plan Template, it is strongly recommended that Proponents arrange a meeting with the appropriate provincial staff person to discuss the Project and determine what should be considered when preparing a Development Plan Template.

## LINKS, REFERENCES, AND OTHER JURISDICTIONS

Throughout this document, links are provided to useful information that Proponents and their qualified professionals will need when preparing a Development Plan. A list of relevant references, guidelines, and procedures can also be found in [Attachment 2](#).

This document is focused on providing the Proponent with information necessary to obtain provincial authorizations required for Clean Energy Projects occurring on Crown land. Where there is known guidance or information on project requirements from other jurisdictions (i.e. federal government), these links are provided for convenience. There is also information provided pertinent to projects occurring on private land. The information from other jurisdictions is current at the time of writing (April 2011), but Proponents are advised to contact other levels of government directly to discuss the Project and the specific requirements that may apply.

There are both appendices and attachments found at the end of this document. The **appendices** are intended to be completed by the Proponent and submitted as part of the Development Plan. The **attachments** are intended as information and guidance only, and are not expected to be included in the final development plan submission.

## ADDITIONAL CONSIDERATIONS

The purpose of a Development Plan is to provide project-specific information to support provincial decision-making. When building a Development Plan, it may be useful to consider the types of questions that will be asked by Decision Makers during Project review. Decision Makers are generally interested in information that will allow them to determine the following<sup>1</sup>:

1. What encumbrances exist within the area under application? Have the encumbrances been addressed? Are land agreements in place with all private and federal landowners?
2. Has consultation with First Nations been done adequately? Have the interests of all affected First Nations been identified and accommodated appropriately? Has the area of land being applied for reasonable for the proposed works? Has justification/rationale been provided for the size of the application area?
3. Is the volume of water applied for reasonable for the proposed works/water source/ Project area?
4. Have environmental, social, and economic values been addressed through the referral to agencies, consultation with First Nations, and public advertising/staking?
5. After reviewing staff recommendations in the supporting Project reports, have the issues raised been mitigated and/or addressed? If not, is the rationale reasonable?
6. Is the proposal consistent with existing Provincial Government direction, legislation, regulations and policies?

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<sup>1</sup> This list is not exhaustive, and is intended only to provide a general sense of what types of questions may arise during the decision-making process.

## DEVELOPMENT PLAN TEMPLATE INDEX

This Index will be used by Proponents and the Regional Project Team (RPT) to identify what information is provided in the Development Plan Template, and to provide rationale for any information not included. Where a Project triggers a formal review by the provincial or federal Environmental Assessment (EA) agencies, Proponents will provide a cross reference to the information provided in the EA Application documents.

Completion of this Index will give agency staff confidence that the Project Proponent and their qualified professionals will review and address all of the key issues that Ministry staff anticipate with the Project. Using the **Provided (Y/N/P)** column, Proponents can indicate which **information requirements** will be included in their Development Plan by specifying 'yes'(Y), 'no' (N) or 'partially provided'(P). If the Proponent selects 'partially provided' or 'no', they must indicate the rationale for excluding the information in the **comments** column. It is recommended that the Proponent use the table provided below to develop their Development Plan Template.

SECTION	INFORMATION REQUIREMENT	PROVIDED (Y/N/P)	COMMENT	EA REFERENCE
1	PROJECT SUMMARY			
1.1	Project Proponent			
1.2	Overview of Proposed Project			
1.3	Summary of Non-Provincial Agency Authorizations/ Approvals			
1.4	Summary of Provincial Authorizations			
2	PROJECT DESCRIPTION			
2.1	Project Planning and Design Approach			
2.1.1	Project Background and Rationale			

SECTION	INFORMATION REQUIREMENT	PROVIDED (Y/N/P)	COMMENT	EA REFERENCE
2.1.2	Location of Project and Mapping			
2.1.3	Project Facilities			
2.1.4	Labour Pool Requirements			
2.2	Environmental Setting			
2.3	Energy Production and Market for the Product			
2.4	Description of Land Requirements			
2.5	Project Activities			
2.5.1	Construction and Commissioning			
2.5.2	Operations and Maintenance			
2.5.3	Future Project Phases			
2.5.4	Decommissioning Activities			
2.6	Schedule for Development			
3	SCOPE OF THE ASSESSMENT			
3.1	Scope of Issues & Valued Components			
3.1.1	Spatial boundaries			
3.1.2	Temporal Boundaries			

SECTION	INFORMATION REQUIREMENT	PROVIDED (Y/N/P)	COMMENT	EA REFERENCE
3.1.3	Baseline Conditions			
3.2	Environmental Assessment methodology			
4	ENVIRONMENTAL ASSESSMENT			
4.1	Aquatic Environment			
4.1.1	Aquatic Habitat			
4.1.2	Aquatic Fauna			
4.1.2.1	Fish and Fish Habitat			
4.1.2.2	Other Aquatic Species			
4.1.3	Aquatic Vegetation			
4.1.4	Water quality			
4.2	Atmospheric Environment			
4.3	Geophysical Environment			
4.3.1	Surface Hydrology and Hydrogeology			
4.3.2	Geotechnical / slope stability			
4.3.3	Geomorphology			
4.3.4	Geology and Geochemistry			

SECTION	INFORMATION REQUIREMENT	PROVIDED (Y/N/P)	COMMENT	EA REFERENCE
4.4	Terrestrial Environment			
4.4.1	Wildlife and Wildlife Habitat			
4.4.2	Rare Plants, Plant communities and Ecosystems at Risk			
4.4.3	Forest and Range Considerations			
4.4.3.1	Forest Health			
4.4.3.2	Invasive Plants			
4.4.3.3	Forest Resource Features			
4.4.3.4	Range and Forage			
4.5	Summary of Environmental Effects, Mitigation, and Significance			
5	SOCIO-ECONOMIC ASSESSMENT			
5.1	Regional Economy			
5.2	Resource Objectives, Land Use Plans or Other Designations			
5.3	Implications for Adjacent or Overlapping Crown land and Resource Values			
5.3.1	Wildfire Protection			
5.4	Navigation, Transportation, and Access			

SECTION	INFORMATION REQUIREMENT	PROVIDED (Y/N/P)	COMMENT	EA REFERENCE
5.4.1	Roads, Bridges and Railroad			
5.4.2	Flight Path			
5.4.3	Public Access			
5.5	Water Rights			
5.6	Human Health and Safety			
5.7	Summary of Socio-economic Effects, Mitigation, and Significance			
<b>6</b>	<b>PROJECT ENGAGEMENT ACTIVITIES</b>			
6.1	Record of Engagement Activities			
<b>7</b>	<b>FIRST NATION INFORMATION REQUIREMENTS</b>			
7.1	Consultation Obligations of the Province			
7.2	Identification of First Nations			
7.3	Project Setting – Traditional Use and Aboriginal Rights/Title Issues in the Project Area			
7.4	Project Setting - Archaeological Resources			
7.5	Consultation with First Nations			
7.6	Potential Project Effects on First Nation Interests			

SECTION	INFORMATION REQUIREMENT	PROVIDED (Y/N/P)	COMMENT	EA REFERENCE
7.7	Commitments to First Nations			
8	MONITORING PROGRAMS			
8.1	Construction Environmental Monitoring			
8.2	Operational Environmental Monitoring			
9	FEDERAL REQUIREMENTS			
10	SUMMARY OF COMMITMENTS AND CONCLUSIONS			
10.1	Summary of Project Commitments			
10.2	Concluding Remarks			
	APPENDICES			
1	Private/Federal Land Requirements			
2	Considerations for Crown Land Resources			
3	Interaction of Project activities and VCs Matrix			
4	Residual Impact Assessment Table Template			
5	Region-Specific Requirements			

## PROFESSIONAL CERTIFICATION

Identify every qualified professional (QP) contributing to the Development Plan. Each QP is to provide a signed statement, specifying the section(s) of the Development Plan for which they are responsible, and confirming that the required information has been provided and is true and complete based on their professional knowledge.

QPs involved in the environmental assessment of Clean Energy Projects must belong to a recognized professional association / college (e.g. ABCFP, APEGBC, ASTTBC, BCIA, CABBC) and are governed by their association/college with a particular code of ethics. These codes of ethics provide guiding principles and detailed interpretations of these principles, explaining how and why QPs must conduct themselves with competence, independence, and integrity.

Please note that all assessments are to be completed and supported by an appropriate QP. Assessment information is to be collected using consistent, repeatable sampling methods following provincial standards or referenced guidelines. This will ensure that assessment information is suitable for use as baseline data in monitoring program(s) and Project reviews or audits.

Qualified Professional				Section(s) of Development Plan Responsible for: Title(s)/ Page number(s)
Name	Accreditation and Professional Association #	Area of Expertise	Signature	

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## LETTER OF TRANSMITTAL

Proponents will include a cover letter with their Development Plan that briefly outlines the Project proposal and **provides a list of the provincial authorizations being requested** as part of the application process. The letter must include contact information for the Proponent and reference to any pertinent Project specific components of the development, such as plans to connect with other clean energy projects, known BC Hydro

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# EXECUTIVE SUMMARY

## Content Requirement

In the Executive Summary, the Proponent will provide:

1. A concise statement outlining the **purpose** of the Development Plan, including a brief summary of the Project’s purpose (e.g. expected MW), key components as outlined in the “Project Description” and proposed total footprint (in hectares).
2. A concise description of **engagement/ consultations** with First Nations, the public, stakeholders and government agencies including a summary table of the issues raised, solutions suggested or actioned, issues outstanding, and of information distribution activities, including public meetings or open houses.
3. A general overview of **key impact issues** and proposed impact management measures or future studies and/ or monitoring that will address mitigation and residual impacts.
4. **Maps** showing both regional context (1:20,000 scale) and site-specific setting (1:5,000 scale).
5. Estimated total **direct labour force** in person years (PY<sup>2</sup>) required during construction and operation, and deconstruction where applicable.
6. Estimated **capital cost** of the Project.
7. Estimated **Project benefits** (social, environmental and economic).
8. The QPs’ **conclusions** from the environmental and socio-economic assessments.

**Table 1: Summary of Agency Issues**

Agency	Authorization/ Approval requested	Status	Comments	Contact
<i>Example1: Fisheries and Oceans Canada</i>	<i>Authorization for HADD/ Operational Statements</i>	<i>Submitted Oct-02-2011</i>	<i>Operational Statements will be followed, Authorization not required</i>	<i>Joe Smith, DFO Smithers. Phone/ Email</i>

**Table 2: Summary of Issues raised during public/ stakeholder engagement phase**

Group consulted and contact names (e.g. Mr. Joe Smith, Municipality, stakeholder group)	Dates of meetings, calls, correspondence	Summary of issue raised and proposed solutions	Mitigative measures adopted/ rationale for not adopting	Proponents comments

<sup>2</sup> Note: one PY equals a single person employed full time for one year (40 hrs per week x 52 weeks = 2080 hours)

**Table 3: Summary of issues raised during engagement/ Consultation with First Nations**

<b>First Nation consulted and contact names</b> (e.g. Mr. Joe Smith, ABC First Nation)	<b>Dates of meetings, calls, correspondence</b>	<b>Summary of issue raised and proposed solutions</b>	<b>Mitigative measures adopted/ rationale for not adopting</b>	<b>Proponents comments</b>

## ABBREVIATIONS

*Acronyms used throughout the Development Plan*

Abbreviation/ Acronym	Explanation
7Q10	Seven-day, consecutive low flow with a ten year return frequency
AIR	Application Information Requirements (EAO)
BACI	Before-After-Control-Impact
BEC	Biogeoclimatic Ecosystem Classification
BMP	Best Management Practice
CABIN	Canadian Aquatic Biomonitoring Network
CDC	Conservation Data Centre
CEA	Cumulative Effects Assessment
CEAA	Canadian Environmental Assessment Agency
CEMP	Construction Environmental Management Plan
CEP	Clean Energy Project
CMS	Cubic Meters per second
COSEWIC	Committee on Status of Endangered Wildlife in Canada
CP	Cut Permit
CWS	Canadian Wildlife Service
DFO	Department of Fisheries and Oceans
DPIR	Development Plan Information Requirements
EAO	Environmental Assessment Office
ESD	Environmental Stewardship Division
FNID	First Nation Initiatives Division
FRPA	Forests and Range Practices Act
FSP	Forest Stewardship Plan
GAR	Government Actions Regulation
HADD	harmful alteration, disruption and destruction of fish habitat
IWMS	Identified Wildlife Management Strategy
kV	Kilovolt
LSA	Local Study Area

MAD	Mean annual discharge
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML/ADR	Metal Leaching/ Acid Rock Drainage
MFLNRO	Ministry of Forests, Lands, and Natural Resources Operations
MOE	Ministry of Environment
MOTI	Ministry of Transportation and Infrastructure
MW	Megawatt
MMD	Mean monthly discharge
OEMP	Operational Management Plan
OGMA	Old Growth Management Areas
PCL	Permit to Occupy Crown Land
PEM	Predictive Ecosystem Mapping
QA/QC	Quality Assurance / Quality Control
QP	Qualified Professional
RoW	Right of Way
RISC	Resource Information Standards Committee
RSA	Regional Study Area
RSF	Resource Selection Functions
SAR	Species at Risk
SARA	Species at Risk Act
TDS	Total dissolved solids
TFL	Tree Farm License
UWRs	Ungulate Winter Ranges
VC	Valued Component
VEC	Valued Ecosystem Component
WHA	Wildlife Habitat Area
WIDM	Water Inventory Data Management System
WSC	Water Survey Canada
WTRA	Wildlife Tree Retention Area

## **LIST OF TABLES**

Proponents will provide a List of Tables in the order that they appear in the Development Plan. All tables will be numbered and titled throughout the Development Plan.

## **LIST OF FIGURES/ DIAGRAMS**

Proponents will provide a List of Figures/ Diagrams as they appear in the Development Plan. All figures and diagrams be numbered and titled throughout the Plan.

## **LIST OF STUDIES AND CONSULTANT REPORTS**

Proponents will provide a list of all studies and consultant reports prepared for the Development Plan and include contact(s) for the QP responsible for the studies and reports. Please note, where the complete report is not included as part of the Development Plan, the Proponent may be requested to provide complete reports during the review of the proposal. Information submitted in support of an application will become part of the public record (See also the requirement for QPs to complete and sign and the Professional Certification table.)

## LIST OF MAPS

Proponents will provide a list of all maps provided in the order that they appear in the Development Plan. Each map must have a title that indicates the theme and measurements in metric (e.g. meters, hectares, kilometers). Maps must contain a north arrow and longitude and latitude references. Where available, please provide shape files. When the Development Plan is complete, a full list should be provided here with reference to the title, page number and section where the maps are located.

At a minimum the following maps must be included as part of the Development Plan and attached as an Appendix (if the suggested scale of map listed is not appropriate, discuss site specific requirements with your Project Lead). :

1. **Overview Maps** (showing both regional context (recommend 1:20,000 scale) and site-specific setting – (1:5,000 scale).
  - a. stream name (gazetted &/or local) and FISS watershed code (1:20k)
  - b. drainage area & stream order (1:20,000) at intake & powerhouse
  - c. general description of surface materials and topography
  - d. hypsometry and elevation(s) at proposed point(s) of diversion
  - e. glacial and lake coverage
  - f. TRIM & NTS map number(s) for Project location
  - g. forest cover type(s)
  - h. proposed Project footprint at appropriate scale for relevant detail
2. An **Infrastructure/ Built Environment** map(s) at a scale of 1:20,000 on a TRIM base that shows the Project location within a regional context, including closest communities, existing infrastructure such as roads, rail, bridges, transmission lines, etc.
3. An **Environmental Features** map(s) at a scale of 1:20,000 on a TRIM base that shows designated parks, conservancies, heritage conservation sites, areas designated pursuant to the *Forest and Range Practices Act* /Government Action Regulations (e.g. Ungulate Winter Range (UWR), Wildlife Habitat Areas (WHA), OGMAs, etc); watercourses (rivers, coastline, lakes, etc) and topographical features.
4. A **Geomorphology** map at a scale of 1:20,000 detailing the soils, geotechnical elements (stability, erosion, etc) and natural hazards (seismology, flood, avalanche, land slide, etc);
5. A **Municipal/ Regional Government** map at a scale of 1:20,000 showing the Official Community Plan Designations, Development Permit Area Designations, Recreational Features, zoning bylaw designations, building inspection, water and sewer services, floodplain, fire protection areas, socio-cultural features (most local governments have copies of their Official Community Plans on their website).

6. Map(s) (at appropriate scales) of known information (known occurrences, current and future range, habitat suitability) within the Project area:
  - a) Provincial red and blue listed animals;
  - b) Provincial red and blue listed plants, plant communities and ecosystems;
  - c) Species listed by the Committee on Status of Endangered Wildlife in Canada (COSEWIC) and federal *Species at Risk Act* (SARA) ;
  - d) Regionally significant/other VC species (i.e. mammals, amphibians, reptiles, birds, bats, insects, migratory birds).
  - e) Known information of locations and habitat distribution (e.g. from CDC)
  - f) Fish, wildlife and plant species identified as being of cultural importance to First Nations.
7. A map (at an appropriate scale) illustrating the known transportation and travel axis in the study area (e.g. commercial shipping routes, winter roads, recreational boating/ kayak routes).
8. Regional watershed map (1: 250,000) showing:
  - a. Location of Project watershed and distance from nearest community.
  - b. All streams & tributaries (specify any fisheries-sensitive watersheds or temperature-sensitive streams,
  - c. Watershed boundaries to 3rd order
9. Any additional maps necessary to evaluate the Project.

# 1 PROJECT SUMMARY

The summary provides contextual background information on the Project and the Proponent.

## 1.1 PROJECT PROPONENT

The Proponent must identify the Proponent's background, including history, description and contact information (i.e. name, address, phone, fax, email). Also provide the name and contact information for the firm(s)/individual(s) managing the Project, including the registered BC Company Name(s) and number(s).

## 1.2 OVERVIEW OF PROPOSED PROJECT

Include the following in the Project Overview using maps, diagrams, schematics and figures as applicable (in metric measurements):

1. The formal Project name (to be used by all agencies)
2. The legal description of the area under application, including a legal description and status of land appurtenant to the powerhouse, and any private or federal land affected by the works.<sup>3</sup>
3. A concise statement outlining the purpose of the Development Plan, including a brief summary of the Project's purpose and rationale, key components and proposed total footprint (in hectares) including the proposed length of transmission lines.
4. For water power Projects, provide the maximum proposed quantity of water to be diverted, in cubic metres per second (cms) and amount of energy production in megawatts (MW) required for the Project.
5. For wind energy Projects, please indicate the anticipated energy production in MW.
6. A statement as to whether the Project will be submitted to the Provincial Environmental Assessment Office (EAO) or Canadian Environmental Assessment Agency for review.<sup>4</sup>
7. Overview Maps, Infrastructure/ Built Environment, Environmental Features, Geomorphology maps (see [List of Maps](#) for more detail)
8. A summary of the prevailing climate conditions.
9. A general description of the activities associated with the development including construction, clearing, alteration of land, upgrading of existing infrastructure. Include the BEC zone and associated habitat information for the area impacted.
10. An estimate of capital construction costs.
11. An estimated time frame for each phase of development.
12. Engineered drawings as appropriate.
13. An assessment of the direct employment in person years (PY) that the Project will create during construction, operation and decommissioning, where applicable. Include key job categories and salary ranges for each phase.
14. A list of other developments in the regional study area (RSA) (e.g. Existing transmission lines)

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<sup>3</sup> For instructions on legal descriptions for unsurveyed Crown land, see Attachment 1

<sup>4</sup> BC EAO links provided in section 1.2 of Attachment 2.

### 1.3 SUMMARY OF NON-PROVINCIAL AGENCY AUTHORIZATIONS/ APPROVALS

Discuss and summarise applicable approvals, authorisations or best management practices from other jurisdictions (e.g. local and federal governments) that are associated with the construction and/or operation of the Project.

**Table 4: Summary of Non-Provincial Agency Authorizations/ Approvals**

Agency	Nature of Authorization/ Approval requested	Status	Comments	Contact
<i>Example: Fisheries and Oceans Canada</i>	<i>Authorization for HADD/ Operational Statements</i>	<i>Submitted Oct-02-2011</i>	<i>Operational Statements will be followed, Authorization not required</i>	<i>Joe Smith, DFO Smithers Phone/ Email</i>
<i>Example 2: Regional District of Skeena Queen Charlotte</i>	<i>Zoning Bylaw Amendment</i>	<i>Submitted Oct – 4-2011</i>	<i>Zoning bylaw has received 3<sup>rd</sup> Reading; adoption pending</i>	<i>Jean Smith, Planner, RDSQC Phone/ Email</i>
<i>Example 3: Transport Canada</i>	<i>Best Management Practices for bridges</i>	<i>Engineer sign-off that BMPs are adhered to – prepared Oct-05-2011</i>	<i>No application needed; agreement to follow BMPs</i>	<i>Bob Smith, TC; Brenda Smith, P.Eng. Ph/ Email Contacts</i>

### 1.4 SUMMARY OF PROVINCIAL AUTHORIZATIONS

For assistance determining what provincial permits are required and additional guidance on completing the application package(s) for these, please see [Appendix 1](#) and consult the Project Lead.

Discuss provincial authorisations that will need to be considered for the Project.

**Table 5: Summary of Provincial Authorizations**

Authorization Required	Statute/ Regulation	Status	Prerequisites	Development Plan reference (section and page)

## 2 PROJECT DESCRIPTION

This section describes the Project facilities and associated activities for all stages of Project development, including construction, operation/maintenance and decommissioning/reclamation. The description must be in sufficient detail to allow a meaningful assessment of potential Project effects. If an up to date and current Project Description has been developed previously, it may be used to form the content for this section. Please refer to the Project Description i.e.: “The (NAME) Project Description dated (XX/XXXX) forms part of this Development Plan”.

All key Project components and activities must be identified and clearly explained.

### 2.1 PROJECT PLANNING AND DESIGN APPROACH

This section should include information on the Project Planning and Design Approach.

Include maps/ photographs/ site plans and engineered drawings at appropriate scales that indicate the layout of Project components and activities. Drawings should contain sufficient detail to allow for meaningful review of the Project. It is recognized that comprehensive design information may not be available at the Development Plan stage, and in such cases, the feasibility of the design approaches (using established precedents, constructed projects, etc) is important to include to provide agency reviewers and the public with an understanding of the overall Project, and highlight the role of professional reliance in the detailed design, construction, and operation of the Project following the approval of the Development Plan.

#### 2.1.1 PROJECT BACKGROUND AND RATIONALE

Describe the background and rationale for the Project.

Include:

1. Project history, including a summary table of all Project decisions issued to date.
2. Rationale for the Project and Project location, and description of the Project’s objectives.
3. Description of any sustainability principles which have guided Project planning (e.g. LEED design principles, energy efficient technologies, relevant information and criteria from higher level plans, etc).

#### 2.1.2 LOCATION OF PROJECT AND MAPPING

Drawings should contain sufficient detail to allow for meaningful review of the Project.

The following information should be provided for the Project location:

1. Longitude and latitude of the proposed Project footprint. If it is a linear area, two or more sets of coordinates should be provided.
2. For water power projects, provide the coordinates for the point(s) of diversion (e.g. intake and power house)
3. Legal description of Project area<sup>5</sup>.
4. For windpower projects, provide locations and coordinates for all components of the proposed wind farm (which would include, but is not limited to; WTG, location of met towers, location of

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<sup>5</sup> For instructions on how to describe unsurveyed Crown land see Attachment 1

electrical components and substations, location of transmission lines, interconnection points and switch houses).

Maps required for this section are outlined below. Detailed requirements for each map are listed in the [List of Maps](#).

1. A watershed overview map<sup>6</sup>
2. Topographic maps (on 1:20,000 TRIM base)
3. A map showing the primary Project facilities in relation to existing infrastructure and features including existing transportation components (e.g. airports, ports, railways, roads, electrical power transmission lines, pipelines, national historic sites, nearby communities, fishery and fishing areas, important archaeological sites, residential areas etc.)
4. A description and map of other industrial activities in the watershed, past and present (e.g. forestry, landfills or contaminated sites, mining and other hydroelectric power generation facilities, including their relationship(s) to the proposed Project facilities and shared infrastructure, roads, transmission lines etc.) Also include, as appropriate, any restoration activities that have taken place (road deactivation, riparian restoration, stream rehabilitation, reforestation, etc).
5. Location map of any camps required for work crews. (Permits from Local Health Authorities may be required depending on camp size and duration of use) – see [Appendix 1](#) for more information on camp requirements.
6. A description and map of proposed quarry sites, if applicable.
7. For wind power Projects, provide a wind map and applicable geographical information such as slope/aspect.

### 2.1.3 PROJECT FACILITIES

The objective of this section is to describe the Project components and associated on-site and off-site infrastructure and other facilities required for Project construction, operation and maintenance. The proposed infrastructure should be presented on a 1:20,000 TRIM map and be properly geo-referenced.

Provide a detailed explanation (including diagrams, schematics, maps, and figures where appropriate) of **all** works required for the Project, including (but not limited to) the following:

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<sup>6</sup> See preliminary project description in [Hatfield et al. \(2007\)](#) for detailed watershed mapping requirements.

<ul style="list-style-type: none"> <li>• Intake/weir</li> <li>• Penstock</li> <li>• Powerhouse</li> <li>• Switchyard</li> <li>• Substations</li> <li>• Transmission Line Routing and interconnection to the grid</li> <li>• Construction Staging Areas</li> <li>• On and Off Site Construction zones</li> <li>• Construction access and transportation routes</li> <li>• Stream crossings</li> <li>• Bridges (temporary and permanent)</li> <li>• Barge landings</li> <li>• Air strips/ helipads</li> </ul>	<ul style="list-style-type: none"> <li>• Quarries, borrow areas and spoil areas</li> <li>• Towers (transmission, meteorological, etc)</li> <li>• Turbines (water, wind, ocean)</li> <li>• Transformers</li> <li>• Roads (temporary and permanent)</li> <li>• Batch plants</li> <li>• Communication sites</li> <li>• Access roads</li> <li>• Construction Camp</li> <li>• Laydown areas</li> </ul>
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In addition, provide discussion on the following:

1. Any permanent and/or temporary structures (e.g. wind turbine generator foundations, generators, penstock(s), dam/intake structure (type, height, footprint), diversion weir, sediment and large woody debris structures, and fish passage structures past dam if fish present in the diversion reach);
2. A list of the type of equipment to be used at each location;
3. A discussion of permissions to connect to the electrical utility Grid (e.g. BC Hydro, Fortis BC, etc);
4. The capacity and the size of the various components/size of site in MW;
5. Service and maintenance centre/Project interpretation centre, if applicable;
6. Activities such as clearing or site grading;
7. For water power Projects discuss:
  - a) Extent of flooding associated with the Project (e.g. any proposed storage or headpond(s));
  - b) Tailrace structure, tailrace fish exclusion structure and location relative to most upstream extent of fish migration routes;
8. For wind power Projects discuss:
  - c) Extent of areas inappropriate for roads or wind turbine placement;
  - d) Control points for road network (stream crossings, gully crossings, steep / impassable slopes, etc)
9. Summarize the results of evaluating alternative locations for the Project or Project components, identifying factors which led to selection of preferred option(s).

#### 2.1.4 LABOUR POOL REQUIREMENTS

1. Discuss the anticipated labour pool requirements for construction, operations and post-maintenance and maintenance phases and provide an overview of the expected housing and services to be used in support of the labour pool during each phase. Indicate if employees will be sourced locally, regionally, nationally, etc and describe any relevant employment strategies.
2. Where applicable, discuss the intended approach and associated logistics for the delivery of services required to support the labour force. This will include such items as water supply, waste disposal, material requirements, energy supply, operations stage transportation/traffic, and

operating workforce services, work camp details (see [Appendix 1](#) for information on additional permit requirements from Local Health Authorities or provincial agencies)

## **2.2 ENVIRONMENTAL SETTING**

Briefly describe the environmental condition of the Project Area.

Proponents should:

1. Describe of the physical setting including any existing infrastructure;
2. Describe of the site setting within the entire footprint of the proposed Project and potential downstream areas; and,
3. Describe any clearing or grading that may have an effect on the drainage and impacts to “downstream” users (e.g. more water introduced to Ministry of Transportation and Infrastructure (MOTI) ditches means that MOTI must manage the extra water. Typically MOTI does not allow extra drainage to enter ditches, as this requires mitigation with larger culverts in order to drain the water to a natural mean annual discharge.

## **2.3 ENERGY PRODUCTION AND MARKET FOR THE PRODUCT**

Briefly describe the anticipated energy production of the Project in general terms. Include tables and figures as necessary. Commercially sensitive, proprietary information should not be provided in the Development Plan, but can be discussed with the Project Lead where appropriate. Describe any existing agreements with BC Hydro, Fortis BC, or other arrangements for the sale of power.

## **2.4 DESCRIPTION OF LAND REQUIREMENTS**

Provide an explanation of Crown land requirements for the Project, and any private land acquisition needs. (Sections 5.2 and 5.3 provide additional details on land requirements and potential implications).

*Note: If the Project is contained wholly on private or federally controlled land, please see [Appendix 2](#) for additional details that will need to be discussed in this section*

## **2.5 PROJECT ACTIVITIES**

### **2.5.1 CONSTRUCTION AND COMMISSIONING**

Provide a description of all construction activities associated with the Project.(All the associated authorizations will be listed in Table 1.4) [Appendix 1](#) provides information and links for preparing additional provincial application packages for some of the construction activities associated with the Project.

The description will include the following:

1. Site Preparation:
  - a. Discuss the establishment of staging, borrow, and spoil areas, as well as the clearing and grubbing of the intake and powerhouse sites, penstock, and wind turbines.
  - b. Discuss the survey of the transmission alignment and structure layout, the establishment of staging areas, the clearing and grubbing of new access trails, and upgrade of existing access.

- c. Discuss the survey of the permanent road alignment, the establishment of staging and borrow areas, and the clearing and grubbing of the ROW, and any clearing required to access the site.
2. Intake Construction (*for water power Projects*)  
Discuss the construction of the intake, including the methods for temporary stream diversion, development of the weir site, dam structure<sup>7</sup> (type and height), throughput of sediment, fish passage upstream and downstream from the dam, dismantling of the temporary stream diversion, completion of the intake structure and proposed timing for construction and proposed blasting associated with construction.
3. Water Conveyance System (*for water power Projects*)  
Discuss the blasting and excavation of trenches, the blasting and boring of tunnels, the installation of the conduit, the construction of thrust blocks, anchors, and access manholes, the excavation and construction of surface penstock supports and the installation of the penstock.
4. Construction (*for wind power projects*)  
Discuss the wind turbine generators (type, size, number, footprint, type of foundation), the electrical and substations, the operating service centres, the concrete batch plants, the transportation routes for equipment, the location of the quarries, and the geotechnical information for the foundations. Discuss the construction of the wind turbines, including foundations, towers, blades, nacelles and transformers.
5. Powerhouse and Switchyard  
Discuss the blasting and excavation required for the powerhouse and tailrace sites, the construction of the powerhouse and tailrace structures, the installation of the turbines, generators, and mechanical systems, the installation of electrical and telecommunications equipment, the construction of the switchyard, and the installation of switchyard equipment.
6. Testing and Commissioning  
Discuss the activities associated with testing and commissioning the Project.
7. Reclamation, Restoration and Offsetting  
Discuss the reclamation of staging, borrow, and spoil areas and any planned restoration of species and/or ecosystems affected by the project. Discuss how residual or unavoidable environmental impacts will be offset through conservation actions on-site, adjacent to or elsewhere.
8. Transmission Corridor - Line Construction  
Where applicable, discuss the installation of the pole structures, rationale for pole design, installation of steel towers, installation of the electrical conductors and fixtures, and construction of new substations. Consider the height of the pole structures and whether the design impedes access to resource lands beyond the transmission lines (e.g. heli-logging or forestry access). Provide a summary of discussions to date with the applicable electrical utility regarding connection to the grid (e.g. BC Hydro, Fortis BC, etc) (See also section 5.3).

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<sup>7</sup> Dam safety Regulations apply to the construction of dams in BC, see Appendix 1

9. Access Management - Site Preparation

Access roads must be designed by an engineer and comply with the minimum standards of appropriate jurisdictions. On Crown lands, the Ministry of Transportation and Infrastructure (MOTI) and Forests, Lands and Natural Resource Operations (FLNRO) have jurisdiction over road design and the Proponents must discuss how their access roads will comply with or exceed provincial requirements. If applicable, discuss other means of access (e.g. trams, rail, marine, etc).

10. Access Road Corridor - Road Construction

Discuss the establishment of any rock quarries and crushing plants, the excavation of new road sub-base (where required), the construction of any new road base, the repairs and construction to bridges, construction activities associated with potential upgrades to any marine access points, and the installation of drainage structures and watercourse crossings.

*Note, for Points h), i) and j): Proponents must pro-actively develop a comprehensive **road and transmission corridor** strategy that considers / mitigates impacts on the crown land base, private land and other resource and environmental values. Proponents must provide a map indicating the possible road and transmission corridors, as well as a comparison of the alternatives. The Proponent must also include a detailed evaluation of the preferred alternative, including a rationale for the preferred location(s) and an assessment of the potential environmental impacts (including, if appropriate, a geotechnical analysis of chosen areas for slope and road stability). Proponents are advised to discuss the proposed connection to the electrical grid with the appropriate utility (e.g. BC Hydro, Fortis BC) early in their planning process.*

11. Schedule for All Phases of Construction

Provide the most up to date construction schedule estimates for preconstruction, construction, operations, maintenance and refurbishing or removal. When preparing the construction schedule Proponents are reminded that there are fisheries windows that will apply when working in or near watercourses. Additionally, there may be timing restrictions associated with general wildlife measures under the *Wildlife Act*.

## 2.5.2 OPERATIONS AND MAINTENANCE

Discuss plant start up under various conditions, plant monitoring and control, and plant/ facility shutdown scenarios and methods, including those that will be employed during an emergency. You may be required to provide Operating Parameters and Procedures Manuals and compliance with these may be required as part of any licence or approvals you receive.

*In some cases, Proponents may be permitted to submit final maintenance plans in the construction phase. Proponents are advised to speak with the Project Lead to determine whether they may be permitted to provide less detailed or preliminary maintenance plans at the Development Plan stage.*

1. Project Maintenance:

Discuss the maintenance of the Project and the role that qualified professionals will play in overseeing and designing the maintenance strategy for the life of the CEP.

2. Transmission Corridor and Right(s) of Way Maintenance:

Discuss the maintenance activities associated with the transmission corridor, including under-line pruning, line inspection, and repairs.

3. Access Road Corridor Maintenance:

Discuss maintenance activities associated with the access road corridor, including access road grading and surfacing, vegetation pruning, ditching, inspection and maintenance of culverts and bridges, and signage.

4. Shared Road and Right of Way Agreements:

Where applicable, provide details of agreements to share existing Rights of Way (RoW) with other users (e.g. Ministry of Transportation and Infrastructure approval to use road RoW for transmission lines), Forest Service Roads and road use agreements with other industrial users. Where applicable, discuss how the roads will be designed to meet the setback requirements outlined in existing policy or legislation (e.g. for wind energy Projects) – see [Appendix 1](#) for additional information on Forest Service Roads)

### 2.5.3 FUTURE PROJECT PHASES

Include information on any future phases that are not addressed in section 2.6.

### 2.5.4 DECOMMISSIONING ACTIVITIES

Provide information on the expected lifetime of the Project or of temporary Project components. Include conceptual decommissioning or reclamation plan(s), removal of structure(s) and ancillary equipment, site remediation, estimated costs of removing infrastructure and deactivating roads, removing buried cables, transmission lines, etc.

## 2.6 SCHEDULE FOR DEVELOPMENT

Provide a schedule for the development of the Project, including the preconstruction, construction, commissioning, operational, and decommissioning (if applicable) and monitoring phases.

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## 3 SCOPE OF THE ASSESSMENT

The objective of this section is to clearly define the issues/factors that need to be considered in the assessment sections of the Development Plan. The scope of assessment should outline the appropriate level of effort necessary for the assessment based on relevant issues and concerns. Defining the level of effort may include whether fieldwork is necessary or specifying whether the assessment can rely on existing information for a particular component.

### 3.1 SCOPE OF ISSUES & VALUED COMPONENTS

The scope of the assessment should identify relevant issues and concerns that are of consequence, reasonably expected to occur and/or of concern from a regulatory or public perspective. Relevant issues are often referred to as 'valued components' (VCs). VCs are elements or aspects of the environmental, cultural, or socio-economic landscape that are important and have value, and therefore are managed. They incorporate ecological conservation, regional concerns, land use and socio-cultural values. VCs should be selected based on legislation, regulation<sup>8</sup> and input provided by the Proponent, the public, and local, provincial, federal and First Nation governments. VCs may be a species, species guild, ecological community, critical habitat, physical parameters (such as water quality or air quality), features or indicators of social, cultural, or economic health, or a combination thereof.

In preparing the Development Plan Template, Proponents will provide a list of all the identified Valued Components (VC) and subcomponents to be considered in the assessment, and include the rationale for selecting each VC. **The preliminary list of VCs and subcomponents must be included in the Development Plan Template submission.**

#### 3.1.1 SPATIAL BOUNDARIES

Identify the spatial boundary of the assessment. It is important to note that spatial boundaries are not limited to geography and can include broader definitions such as air-shed, watershed, and global ecological footprint. Spatial boundaries may vary between VCs. The Proponent must commit to provide the following in the Development Plan:

- 1) Describe the local and regional spatial extent of the assessment relative to the VCs;
- 2) Provide maps outlining the spatial extent of the regional study area (RSA) and local study areas (LSA) of the assessment.

For environmental VCs, LSA is the area affected by the Project through direct effects (i.e. habitat loss and sensory disturbance). LSAs should be large enough to capture setbacks or buffers required by the VC of interest. LSAs for species specific VCs should be informed by the species ecology and life history characteristics such as moisture regime, home range, and migration routes. RSAs for species specific VCs should examine the potential sub-population or population level effects or implications of the proposed CEP by investigating a larger geographic area (i.e. watershed or management area).

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<sup>8</sup> Many Regions have already determined specific ecological VCs for their region. It is expected that Proponents will follow regional guidelines and talk to Regional staff to ensure all appropriate VCs are included in the assessment.

For socio-economic VCs there are number of spatial boundaries that should be considered: local, regional, national and international. Smaller projects will likely only impact the local economy, whereas some larger scale projects will have international effects. Proponents should identify the appropriate spatial boundary for social, cultural and economic VCs. A list of potential sources for socio-economic information is provided in [section 5](#).

### 3.1.2 TEMPORAL BOUNDARIES

Given the distinct activities associated with each phase of a proposed Project, defining temporal boundaries will clearly and uniquely consider site preparation, construction, operation and maintenance and decommissioning.

The Proponent must commit to provide the following in the Development Plan:

- 1) Describe the temporal extent of the assessment relative to the VCs for the life of the Project, specifically each of the following phases of the proposed Project: planning and design, construction, operations, and decommissioning and closure.
- 2) Describe any annual or seasonal variation related to VCs and biophysical constraints for all phases of the proposed Project (e.g., migration patterns/ breeding patterns/ freeze-thaw cycles).

### 3.1.3 BASELINE ENVIRONMENTAL CONDITIONS

The objective of this section is to describe the existing environmental conditions in the proposed Project area as an understanding of the general environmental setting and characteristics of the Project area, necessary for decision making.

Proponents are advised to describe baseline conditions for all environmental elements of the Project area. Specifically, the baseline environmental conditions section should describe and summarize the existing environmental characteristics of the site, including the zone of potential influence of the proposed Project. Baseline conditions should be based on information obtained from previous studies and databases. Supporting documents should be referenced and, where applicable, attached as appendices to the Development Plan.<sup>9</sup>

The collection of baseline information may require additional field studies or programs. All data must be collected to [RISC](#) or relevant provincial standards/regional guidelines. All methods should be described including sample locations, timing, search effort, and results from field sampling reported and mapped. Any exceptions must be presented to and approved by regulatory agencies. If an alternative assessment method is used for the Project, indicate the methodology used. Raw data should be included as appendices. All relevant permits, such as fish collection [permits](#) or [wildlife sundry permits](#), must be obtained prior to sampling.

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<sup>9</sup> It is recommended that Proponents refer to provincial databases. A list of existing provincial environmental databases and associated links is provided in [Attachment 4](#).

## 3.2 ENVIRONMENTAL ASSESSMENT METHODOLOGY

*[NOTE: Baseline studies and assessment analyses must follow relevant provincial and federal standards and guidance and be conducted under the direction of an appropriately qualified professional.]*

### 3.2.1 ENVIRONMENTAL IMPACT ASSESSMENT

The Environmental Impact Assessment procedures require the following five sections should be discussed for each identified VC: (1) existing condition, (2) impact assessment, (3) proposed environmental mitigation and offsetting, (4) significance of residual effects; and (5) summary. Each section is briefly discussed below:

1. **Existing Conditions:** The objective of this section is to describe, or refer to; baseline conditions for each identified VC (see Section 3.1.3).
2. **Impact Assessment:** The purpose of this section is to adequately describe the interactions of the Project components and the Project setting with identified VCs. The Impact Assessment section evaluates the impacts of the proposed CEP activities (construction, operation, maintenance and decommissioning) on the specific environmental VCs. The assessment of impacts should be based on information obtained from previous studies and databases and/or collected in accordance to [RISC](#) or relevant provincial standards/regional guidelines. Any exceptions must be presented to and approved by regulatory agencies. If an alternative assessment method is used for the Project, indicate the methodology used. Proponents should include or make available, if requested, a copy of the data on which the assessment of the impact is based. The impact assessment should explicitly detail the direct and indirect impacts of the Project on each VC for all phases of the Project. Occasionally, it may not be possible to fully assess all impacts from the Project due to either insufficient data or the assessment of the impact requiring input from agencies. In such cases, the Proponent should provide commitments for additional studies if the Proponent is unable to fully assess the impact. Proponents are expected to use QPs with appropriate qualifications and demonstrated expertise in the field of study related to the VC, and direct experience in detailed assessments of CEPs.
3. **Proposed Environmental Mitigation and Offsetting:** The objective of this section is to describe measures the Proponent will commit to undertaking to mitigate the potential adverse environmental impacts identified for each VC. Mitigation actions include the following, in order of priority: avoidance, on-site mitigative measures, off-site mitigative measures, restoration, compensation, actions to offset residual or unavoidable effects on-site, adjacent to, or elsewhere, in lieu fees to offset residual or unavoidable effects, and additional conservation actions., and additional conservation actions. Proponents should describe efforts taken during Project design and siting to minimize effects on the environmental VC. This must include a justification for location of all facilities and infrastructure and where changes to the Project design were undertaken to minimize or avoid impacts. Describe mitigation measures for each impact, by identifying applicable provincially/regionally developed [best management practices](#)

(BMPs), guidance documents, and/or best available science. The mitigation plan should be integrated within the Construction Environmental Management Plan (CEMP) (See section [8.1](#)). When the level of effectiveness is clearly uncertain, it may be necessary to provide additional mitigation, higher levels of compensation/offsetting, and/or an adaptive management approach. In addition to the [CEMP](#), Proponents may be required to provide a list of environmental management plans and commitments to the operational environmental monitoring (OEMP) (see [Section 8](#)).

4. **Significance of Residual Effects:** This section evaluates the potential residual adverse effects of each identified VC. Proponents should assess whether any residual adverse effects would be significant, after accounting for mitigation and/or compensation/offsetting. Significance determination should be assessed by analyzing the following factors: magnitude, known threshold (if applicable), geographic extent, duration and frequency, reversibility, context, and probability. [Attachment 5](#) describes these factors in greater detail.

**Summary:** The objective of this section is to summarize findings and include any further information on the VC that is relevant to the Project. The Proponent should summarize the assessment in Impact Assessment Tables (See [Appendix 3](#) and [Appendix 4](#).)

## 4 ENVIRONMENTAL ASSESSMENT

The objective of the environmental assessment is describe the baseline environmental conditions of the Project setting and to evaluate the potential impacts of the proposed Project on identified environmental VCs (see [Section 3](#)). Four generalized subsections have been identified: [4.1 Aquatic Environment](#), [4.2 Atmospheric Environment](#); [4.3 Geophysical Environment](#); and [4.4 Terrestrial Environment](#). All VCs identified during the scoping assessment must be addressed in one of these four sub-sections.

*(Both the provincial and federal EA processes require cumulative effects assessment according to policies of respective offices. For Projects that do not trigger the federal or provincial EA, cumulative effects assessment is desirable, but not required by legislation.)*

### 4.1 AQUATIC ENVIRONMENT

The objective of this section is to describe existing conditions; assess potential impacts; prescribe adequate mitigation and offsetting measures; evaluate the residual impacts, include a statement of significance; and provide a summary (see [Section 3.2 Environmental Assessment Methods](#)) for all aquatic environment VCs.<sup>10</sup>

For water power Projects or other Project components that will divert stream flows, provincial guidelines have been developed which outline the information requirements. In addition to the guidance provided within each section, Proponents are encouraged to refer to the following documents.

- [“Guidelines for the collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower Projects in British Columbia.”](#) (Hatfield et al. 2007).
- [“Assessment methods for aquatic habitat and instream flow characteristics in support of applications to dam, divert, or extract water from streams in British Columbia.”](#) (Lewis et al. 2004).

Proponents should be aware that stream crossings or construction activities in or about a stream (as defined in the *Water Act*) must comply with requirements of section 9 of the *Water Act*. Construction activities should conform to the [instream work windows and guidelines](#). In addition to provincial guidelines and requirements, [Attachment 3](#) summarizes DFO’s ‘[Working Near Water in BC and Yukon](#)’ website designed to help people undertaking Projects in and around water understand what they need to know and do to comply with the Federal *Fisheries Act*.

#### 4.1.1 AQUATIC HABITAT

This section is applicable to CEPs which have the potential to affect any aquatic habitat, including marine and/or freshwater. The baseline environmental conditions should address existing aquatic habitat within

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<sup>10</sup> See Section 4.1.10.1 of [Lewis et. al \(2004\)](#) for impact analysis assessment methods in support of water licence applications.

the Project setting. An environmental impact assessment will be conducted for all aquatic habitats identified as a VC (**Section 3.2.2**).

When describing baseline conditions, Proponents and their qualified professionals should:

1. Describe and map, consistent with provincial standards, all aquatic resources (ponds, streams, rivers, lakes, reservoirs, wetlands, bogs, fens, swamps, estuaries, oceans, etc.) within their Project area, including infrastructure as well as access roads and utility corridors.
2. Summarize and interpret aquatic resources and related data.
3. Provide habitat information including aerial photography, the watershed atlas, and bathymetric mapping;

For the environmental impact assessment, Proponents and their qualified professionals should:

4. Describe and quantify footprint effects associated with each structure (e.g. stream crossings, transmission line and penstock crossings, buildings and facilities), including both direct effects (e.g. alienation of habitat) and indirect effects (e.g. downstream sedimentation during construction).

#### 4.1.2 AQUATIC FAUNA

The baseline environmental conditions should address existing aquatic, freshwater and/or marine, fauna within the Project setting. An environmental impact assessment will be conducted for all aquatic fauna identified as a VC (**Section 3.2.1**). Additional guidance and requirements are provided below for fish and fish habitat and other species. Submit occurrence record to BC Conservation Data Center, where applicable.

##### 4.1.2.1 FISH AND FISH HABITAT<sup>11</sup>

This section is applicable to CEPs which have the potential to affect fish and fish habitat. The provincial [Fish Protection Act](#) allows water managers to consider impacts to fish and fish habitat. Fish and fish habitat are also protected by the federal *Fisheries Act*, which defines fish habitat as “spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes”. See [Attachment 3](#) for details regarding DFO’s requirements for Proponents working near water.

For the baseline environmental conditions, Proponents and their qualified professionals should consider the following:

1. Compile and map, according to the [RISC Standards](#) (1:20,000 TRIM), known information (with reference sources) on:
  - a. Aquatic species that may be directly affected by the proposed Project.

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<sup>11</sup> See [Hatfield et al \(2007\)](#) for guidelines on collection and analysis of fish and fish habitat data.

- b. Observations and potential occurrences of species at risk and of concern, defined by regional biologists, the [Provincial Conservation Framework](#) and the [Species at Risk Registry](#). Include observations and potential occurrences of regionally important species.
  - c. Fish habitats (spawning, incubation, migratory, overwintering, rearing, riparian, and food producing etc.) that may be affected by the Project footprint.
2. For freshwater:
- a) Provide information on species presence; distribution, fish stocking records, with confirmed and suspected fish migration barriers/obstacles, for all fish.
  - b) Confirm presence/absence of fish-bearing status of the subject waterbody through a field inventory consistent with [provincial standards](#).
  - c) If fish are absent, fulfill detailed sampling requirements, as per [Hatfield et al. 2007](#), to classify a reach as non-fish-bearing. Describe methods (sample locations, timing, search effort, etc) and report and map results from field sampling. Designation that the stream is not fish bearing may be required for DP submission.
  - d) Describe the existing condition of riparian vegetation (such as BEC site series, vegetation composition, stand structural stage, density, coarse woody debris (size and volume) and general condition) within the Project area that are predicted to be affected by Project construction and operation, including adjacent to flooded areas (i.e. lakes proposed for use as water storage). Utilize TEM if available.
  - e) Proponents may be required to provide baseline data and information on the aquatic macroinvertebrate community using standard methods.
3. For marine systems
- a) Provide information on species presence; distribution, fish stocks and management records.
  - b) Describe existing condition of foreshore vegetation within the Project area.
4. For species VCs, define habitat preferences, life-history periodicity, critical timing of life stages, and identify critical habitat parameters.
5. Identify the performance standards for each VC<sup>12</sup>, when applicable. For Species at Risk, ensure performance standards are consistent with [provincial](#) and [federal](#) recovery goals identified in [recovery plans and management strategies](#) where available.

For the environmental impact assessment, Proponents and their qualified professionals should consider the following:

- 6. Describe and quantify aquatic, freshwater and/or marine, and riparian footprint effects associated with each structure (e.g. stream crossings, transmission line and penstock crossings, buildings and facilities), and which are predicted to be affected by Project construction and operation

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<sup>12</sup> Performance standards are to be set by government and referenced here by the Project's QPs

7. If applicable, describe natural ice formation and frazil ice in streams and potential implications for fish and fish habitat that may occur as a result of altered and/or reduced flows.
8. Proponents may need to assess the potential change in macroinvertebrate communities to assess impacts on fish and fish habitat
9. Describe conceptual Fish Habitat Compensation Plan, if required by DFO. Describe approved Fish Habitat Compensation Plan, if applicable.

Additional guidance is provided for Proponents of water power Projects or Projects which will divert stream flows, including important guidance surrounding an instream flow study ([Lewis et al. 2004](#), [Hatfield et al. 2007](#)).

*Please note: Collecting appropriate data for the Instream Flow Analysis is of utmost importance.*

#### 4.1.2.2 OTHER AQUATIC SPECIES

The baseline environmental conditions should address other existing aquatic, freshwater and/or marine, species within the Project setting. An environmental impact assessment will be conducted for all other aquatic species (freshwater or marine) identified as a VC (**Section 3.2.1**). These may be a species, species guild, ecological community, or a combination thereof, defined by the [Provincial Conservation Framework](#) and the [Species at Risk Registry](#) to be sensitive to the construction and operation of the proposed CEP.

#### 4.1.3 AQUATIC VEGETATION

The baseline environmental conditions should consider describing aquatic vegetation, freshwater and/or marine, within the Project setting. An environmental impact assessment will be conducted for all aquatic vegetation (freshwater or marine) identified as a VC (**Section 3.2.1**). These may be a species, species guild, ecological community, or a combination thereof, defined by the [Provincial Conservation Framework](#) and the [Species at Risk Registry](#) to be sensitive to the construction and operation of the proposed CEP.

Proponents and their qualified professionals should consider the following while describing existing conditions:

1. Compile and map (1:20,000 TRIM) the distribution and abundance of all aquatic plants listed as species at risk and of concern, defined by the [Provincial Conservation Framework](#) and the [Species at Risk Registry](#), which may be impacted by Project activities.
2. If uncertain, a specimen voucher may be required to confirm identification.

#### 4.1.4 WATER QUALITY

This section is applicable to CEPs which may adversely affect environmental water quality. Drinking water implications are discussed in [section 5.5](#). An environmental impact assessment will be conducted if water quality was identified as a VC (**Section 3.1**).

Proponents and their qualified professionals should tailor the [water sampling program](#) to describe the existing conditions specific to the CEP being proposed and include discussion of potential contaminants of concern.

For the baseline environmental conditions, Proponents and their qualified professionals should:

1. Map (1:20,000 TRIM) water quality sampling locations and discharge points.
2. Include a study design table listing sample site locations and sample dates.
3. Provide a rationale for site selection.
4. Compile existing baseflow [water chemistry data](#) and basic seasonal water chemistry data.<sup>13</sup>
5. Ensure that water quality data collection follows the procedures in the [methods standards](#) for quality control and assurance;
6. Identify [critical periods](#) for measuring some water quality parameters. These critical periods need to be identified by a qualified professional in consultation with regulatory agency personnel;
7. Provide tables showing water quality by site and sampling period for each parameter, MDL and QA/QC information.
8. Provide laboratory results and water quality field notes in appendices.
9. Map (1:20,000 TRIM) the drainage divides, areas of groundwater discharge, wetlands and notable topographic features.
10. Identify whether provincial [water quality guidelines](#)<sup>14</sup> are naturally exceeded during baseline conditions and whether site-specific water quality objectives need to be established.

For the environmental impact assessment, Proponents and their qualified professionals should:

11. Include current activities in the watershed and locations of permitted and/or non-permitted discharges to water that may affect the water quality.
12. Describe the potential impacts to water quality from Project activities (construction and operations).
13. Describe potential impacts associated with acid rock drainage and metal leaching.

If guidelines are naturally exceeded during baseline conditions, then site specific water quality objectives may need to be established using approved methods. For information on site specific water quality objectives, refer to the following documents:

- Principles for Preparing Water Quality Objectives in British Columbia.  
<http://www.env.gov.bc.ca/wat/wq/BCguidelines/principles.html>
- Developing Water Quality Objectives in British Columbia: A User's Guide.  
[http://www.env.gov.bc.ca/wat/wq/BCguidelines/wq\\_ob\\_user\\_guide/usersguide.html](http://www.env.gov.bc.ca/wat/wq/BCguidelines/wq_ob_user_guide/usersguide.html)

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<sup>13</sup> See Section 1.5 Water Quality in [Hatfield et al. \(2007\)](#)

<sup>14</sup> BC Water Quality Guidelines are safe levels of substances for the protection of a given water use, including drinking water, aquatic life, wildlife, recreation, irrigation and agriculture. They are developed in order that water quality data can be assessed and site-specific water quality objectives can be prepared.

- Methods for Deriving Site-Specific Water Quality Objectives in British Columbia and Yukon. [http://www.env.gov.bc.ca/wat/wq/BCguidelines/effects\\_ratio/effectsratio.html](http://www.env.gov.bc.ca/wat/wq/BCguidelines/effects_ratio/effectsratio.html)

Proponents are encouraged to reference the detailed [procedural guidelines and sampling manuals](#).

## 4.2 ATMOSPHERIC ENVIRONMENT

This section is applicable to CEPs which may adversely affect environmental air quality. The objective of this section is to describe existing conditions; assess potential impacts; prescribe adequate mitigation and offsetting measures; evaluate the residual impacts, include a statement of significance; and provide a summary. An environmental impact assessment will be conducted if air quality was identified as a VC (**Section 3.2.1**).

For the baseline environmental conditions, Proponents and their qualified professionals should:

1. Provide information on the existing air quality conditions; if applicable include [BC meteorological data](#). Refer to the provincial atmosphere and [air quality guidelines and standards](#).
2. Identify existing [air quality management plans](#) effective in the Project area.
3. Describe climatic factors that may influence air quality including the direction and velocity of dominant winds, and the frequency of atmospheric inversions. This may also include: temperature, precipitation (rain and snow) (i.e.: mean annual precipitation, monthly precipitation distribution, wet and dry year precipitation, and snowfall depth and duration), and wind.
4. Describe current activities in the Project area that may impact the airshed, including locations of permitted and non-permitted discharges to air. Identify preexisting sources of air contaminants.

For the environmental impact assessment, Proponents and their qualified professionals should:

5. Discuss potential emissions (including timing and locations) from the Project construction, operation and maintenance which are expected to produce air quality impacts (e.g. dust, other airborne particulates, greenhouse gases, chemical vapours or odours).
6. Identify any receptors that may be affected by the air emissions (such as residential areas, schools, etc...).
7. Identify the [Provincial](#) and [Federal](#) emissions criteria used to evaluate potential effects.

Proponents are encouraged to include reference to provincial Air Quality [best management practices](#).

## 4.3 GEOPHYSICAL ENVIRONMENT

The objective of this section is to: describe existing conditions; assess potential impacts; prescribe adequate mitigation and offsetting measures; evaluate the residual impacts, include a statement of significance; and provide a summary ([see Section 3.2](#)) for all geophysical environment VCs. In addition to

the guidance described below, Proponents of water power Projects or other Project components that will divert stream flows are encouraged to refer to the following documents.

- “Guidelines for the collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower Projects in British Columbia.” ([Hatfield et al. 2007](#)).
- “Assessment methods for aquatic habitat and instream flow characteristics in support of applications to dam, divert, or extract water from streams in British Columbia.” ([Lewis et al. 2004](#)).

#### 4.3.1 SURFACE HYDROLOGY AND HYDROGEOLOGY

This section is applicable for CEPs which are associated with water withdrawal or works in watercourses such as water power Projects. For Projects with limited instream work, evidence should be provided that hydrological studies and associated impact assessments are unnecessary.

The objective of this section is to characterize the resources sufficiently to address all the relevant issues related to surface water and groundwater, and to describe natural flow conditions, present flow conditions, and how flows may be altered by the Project. It is important that hydrologic information be collected, analyzed, and presented to a high standard. Some standard practices and procedures can be found in the RISC [Manual of British Columbia Hydrometric Standards](#). All information should be presented graphically and in tables using appropriate summary statistics. It is expected that assessment should be performed to the current standard of professional practice and sealed by an appropriate qualified professional in the field of engineering (P.Eng.) or geosciences (P.Geo.).

For the baseline environmental conditions for hydrology, Proponents and their qualified professionals should<sup>15</sup>:

1. Provide a minimum of one year on-site continuous hydrometric data relating to the proposed intake location in the case of a water power Project. In addition, provide regional [snow data](#) for basins that have snowmelt influence on the hydrograph.<sup>16</sup>
2. Conduct a regional analysis including a map of candidate long-term [WSC](#) hydrometric stations in the areas of interest showing stations selected for regional hydrology analysis;
3. Provide maximum quantity of water to be diverted, including timing of maximum diversions.
4. Determine mean monthly discharges (MMD) and mean annual discharge (MAD).
5. Provide 7-day average low flow (mean annual, 7Q10, 5, 20 & 50 years).
6. Provide 200-year instantaneous peak flow.

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<sup>15</sup> See section 1.6 in [Hatfield et al. \(2007\)](#) for further guidance on collecting hydrometric data and discharge estimates, and conducting regional analysis.

<sup>16</sup> If the basin is glaciated, a characterization of the glacial meltwater component of the hydrograph should be made (both above and below the project, if applicable), as well as an analysis of the rate of change in the glacier (retreat, downwasting), and resultant ongoing and projected changes in the hydrograph.

7. Provide Ecosection, ecoregion & ecoprovince of diversion reach: support for proposed unit runoff, seasonal flow regime & fish productivity.

For the environmental impact assessment, Proponents and their qualified professionals should:

8. Provide flow exceedence curves for each month and determine 80% exceedence flow in cms and %MAD;
9. Provide elevations and relative catchments of intake and powerhouse;
10. Provide discharge estimates, integrating onsite data & regional analysis;

Evaluate the potential effects of climate change on water supply, Evaluate the potential effects of changes to glacial- and snow-melt water contributions on water supply, given current trends.

*NOTE: If local inflow to the diversion section exceeds 10% of MAD at the intake, an additional time series of baseline and post-Project flow conditions should be calculated at the powerhouse*

For water power Projects, in addition to [Hatfield et al. \(2007\)](#) and [Lewis et al. \(2004\)](#), Proponents are encouraged to refer to the [Hydrological Guidelines for Waterpower Projects](#) (Land and Water British Columbia Inc. 2005). For water power proposals which include lake drawdown or creating water storage (such that inflows to headpond will not equal outflows over a 24-hour period), the following information is required to assess the Project:

11. Identify how aquatic & terrestrial values would be affected by the proposed operations. This should include, but is not limited to, consideration of potential changes to:
  - a) stability of the littoral zone,
  - b) riparian vegetation,
  - c) water temperature,
  - d) suspended sediment
  - e) productivity,
  - f) connectivity with inlet& outlet stream(s),
12. Assessment from the Proponent's qualified professional as to whether the proposal triggers the information requirements of the [BC Dam Safety Guidelines](#) (2009);
13. Stage-volume curves provided for regulating storage;
14. Information on the types of storage being proposed: active, inactive, dead and surcharge;
15. Identify if/ where flooding of Crown land will/may occur.

*NOTE: Areas upstream of the intake must also be considered in subsequent sections of the Development Plan.*

For CEPs which are anticipated to have impacts on groundwater, for existing conditions Proponents and their qualified professionals should consider the following:

16. Provide baseline information on the extent, use, and potential of groundwater resource in and around the proposed development for subsequent water quantity and water quality impact prediction and monitoring;

17. Map hydrology stations (1:20,000 TRIM) as well as the discharge points and groundwater monitoring locations. Include an accompanying study design showing rationale for site selection and monitoring parameters;
18. Describe current activities in the Project area that may impact groundwater, including locations of permitted and non-permitted discharges. Identify preexisting sources of contaminants.
19. An outline of the site boundaries for the proposed development including catchment and watershed delineation (regional-scale and site-scale);
20. Identification and description of the connection to surface water and outline surface water and groundwater dependent features (quantity and quality); estimate of relevant fluxes;
21. Relevant maps and sections showing groundwater elevations and inferred directions of groundwater flow; and,
22. A discussion of the implications of seasonal conditions on groundwater flow.

For the environmental impacts assessment, Proponents and their qualified professionals should:

23. Evaluate how the Project will impact seasonal changes in groundwater flow patterns.

#### 4.3.2 GEOTECHNICAL / SLOPE STABILITY

The objective of this section is to assess the likelihood of impacts to important habitats, species at risk, existing infrastructure, and public safety as a result of geotechnical hazards and the proposed works. Assess all geotechnical and slope stability components that have been recognized as a VC in the Scope of Assessment (**Section 3.2**).

For the baseline environmental conditions, Proponents and their qualified professionals should:

1. Provide maps (at an appropriate scale) to present information on geotechnical elements (stability, erosion, etc) and natural hazards (seismology, flood, avalanche, landslide etc);
2. Identify and describe where applicable, natural hazards present in the plan area including landslides, avalanches, steep terrain and seismology. Provide information on bedrock (depth, observations of mineralization) regarding the potential for acid rock; drainage and metal leaching ([ML/ADR](#)). Describe other physical processes occurring in the plan area.

During environmental impact assessment, Proponents and their qualified professionals should:

3. Identify and describe, where applicable, terrain stability as a function of proposed land use;
4. Identify if the Project is likely to result in new avalanche paths;
5. Include a discussion of the potential for acid rock drainage and metal leaching if bedrock will be exposed or quarried for road, penstock and other construction;
6. Describe modifications to road sections affected by works that will be required to prevent landslides;

7. Ensure that a probability assessment of the Project being over-topped by landslide (using a probabilistic assessment, not qualitative rating) is included in the impact assessment;
8. Assess ice build up on wind turbine blades and impacts of avalanche and snow creep for transmission line towers, transmission lines and roads, and the resulting road and transmission corridors/ rights of way;

Proponents and their Qualified Professionals may be required to provide a terrain stability assessment relevant to the Project, and should contact the appropriate DM for specific standards.

#### 4.3.3 GEOMORPHOLOGY

The purpose of a geomorphology assessment is to determine whether Project-induced changes in stream flows will alter the relationship between flow, sediment, and channel form, with associated impacts to fish habitats. An environmental impact assessment will be conducted if geomorphology was identified as a VC (**Section 3.2.1**). For CEPs that are associated with water withdrawal or works in watercourses such as water power Projects, Proponents and their qualified professionals (P.Eng. or P.Geo) should, in addition to the provincial guidelines<sup>17</sup>, include the following in the baseline environmental conditions:

1. Describe watershed characteristics including the channel condition, channel confinement, geology and stream type. A review of aerial photographs may be used to determine likelihood of diversion reach containing off-channel habitats in braided sections, fish barriers (partial or complete), or narrow canyonized sections;
2. Identify the presence of features that may affect sediment transport (e.g. significant changes in channel gradient, lakes, waterfalls);
3. Identify the locations of off-channel habitats. [Wetlands and areas of seasonal flooding](#) should be identified on 1:20,000 maps<sup>18</sup>.

For water power Projects, Proponents are encouraged to refer to [Hatfield et al. \(2007\)](#) and [Lewis et al. \(2004\)](#).

#### 4.3.4 GEOLOGY AND GEOCHEMISTRY

The objective of this section is to describe existing conditions; assess potential impacts; prescribe adequate mitigation and offsetting measures; evaluate the residual impacts, include a statement of significance; and provide a summary (see **Section 3.1**) for all geology and geochemical VCs.

Regional studies or previous exploration and development work within or adjacent to the project are may provide initial information relative to the baseline geology and geochemical conditions. Sources for

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<sup>17</sup> See [Hatfield et al. 2007](#); [Lewis et al. 2004](#), and the [Channel Assessment Procedure Field Guidebook](#) & [Channel Condition Assessment Procedures](#)

<sup>18</sup> See hotlink in Attachment 2: Wetlands of British Columbia: a guide to identifications <http://www.for.gov.bc.ca/hfd/pubs/docs/lmh/lmh52.htm>

this type of information would include the [Geological Survey of Canada](#) (GSC) and [the British Columbia Geological Survey](#) (BCGS).<sup>19</sup>

When completing the environmental impact assessment for geology and geochemistry, Proponents and their qualified professionals should consider potential impacts associated with acid rock drainage and metal leaching.

#### **4.4 TERRESTRIAL ENVIRONMENT**

The objective of this section is to describe existing conditions; assess potential impacts; prescribe adequate mitigation and offsetting measures; evaluate the residual impacts, include a statement of significance; and provide a summary ([see Section 3.2 Environmental Assessment Methods](#)) for all terrestrial environment VCs.

##### **4.4.1 WILDLIFE AND WILDLIFE HABITAT**

This section is applicable for CEPs which may impact wildlife, wildlife habitats, and invertebrates protected or managed through provincial conservation initiatives<sup>20</sup>, [resource land use and management plans](#), and regulation and legislation, such as the [Wildlife Act](#), [Forest and Range Practices Act \(FRPA\)](#), as well as federal regulation and legislation including the [Migratory Birds Convention Act](#), and the [Species at Risk Act](#). An environmental impact assessment will be conducted for all wildlife and wildlife habitat(s) identified as a VC (**Section 3.2.1**).

When describing existing conditions, Proponents and their qualified professionals should:

1. Compile and map (1:20,000 TRIM) the following information within the Project area:
  - a) Observations and potential occurrences of species at risk and of concern, defined by regional biologists, the [Provincial Conservation Framework](#) and the [Species at Risk Registry](#). Include observations and potential occurrences of regionally important species.
  - b) Areas legally designated pursuant to the *Wildlife Act*, *FRPA*, and Government Action Regulations (GAR) (e.g. UWR, WHA, OGMAs, WHFs, etc.).
  - c) Locations of uncommon habitats and important [wildlife habitat features](#) (caves, hibernacula, wildlife corridors, known nest trees, etc.).
  - d) Special management areas designated through the [Resource Management and Land Use Plan](#) (s) such as SRMZ.
  - e) Provincial Parks and Protected Areas, Ecological Reserves, and Conservation Lands.

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<sup>19</sup> Links to various studies and reports that may be useful when reviewing baseline conditions can be found in

2. Describe population status and habitat use in the Project area for each VC by discussing distribution, habitat suitability, habitat capability, and migration. Include maps when possible. If applicable, describe the species distribution using habitat suitability and capability models<sup>21</sup>.
3. Communicate with Provincial staff, as well as relevant local and regional governments, university researchers, First Nations governments, local naturalists, BC Guide Outfitters and BC Trappers Association (BCTA) to obtain baseline information, habitat models, and traditional ecological or community knowledge, where available.
4. Identify the performance standards for each VC<sup>22</sup>, when applicable. For Species at Risk, ensure performance standards are consistent with [provincial](#) and [federal](#) recovery goals identified in [recovery plans and management strategies](#) where available.
5. Report all red and blue-listed species sightings to the [BC Conservation Data Centre](#).

For the environmental impact assessment, Proponents and their qualified professionals should:

6. Provide maps (1:20,000 TRIM) showing how the Project components overlap with suitable/capable habitat for each VC.
7. Provide tables that quantify habitat loss and footprint impacts, for each VC in the Project area (by area and percent). Habitat loss and impacts should reflect habitat value, especially high and moderate habitat suitability.
8. Predict direct and indirect impacts to habitat quality and connectivity (e.g. prey availability, cover, travel and corridors) and critical life history stages (breeding, rearing, foraging, overwintering) from habitat fragmentation and/or degradation.
9. Predict direct and indirect impacts to wildlife populations (if possible), including, potential auditory and visual impacts on wildlife.

Proponents and their qualified professionals are encouraged to consult the [provincial management practices](#) (BMPs) and [existing guidelines](#) when prescribing mitigation measures. Mitigation plans may also need to address human-wildlife conflicts and access management. The Proponent must ensure that the construction and operation of the CEP will not contravene with Section 34(b) of the [Wildlife Act](#).

In addition to the guidance above, Proponents of water power Projects or other Project components which will divert stream flows are encouraged to refer to the following documents.

- “Guidelines for the collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower Projects in British Columbia.” ([Hatfield et al. 2007](#)).

For wind energy Projects, federal guidelines have been developed which outline appropriate information to consider. Proponents and their qualified professionals are encouraged to refer to the

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<sup>21</sup> Habitat models should be independently validated with empirical data. If feasible use Resource Selection Functions (RSF) (Boyce et al. 2002.). If verified models are not available, develop new models. Describe methodologies, variables, equation, assumptions and sources of uncertainty. Validate & refine with sufficient field data (i.e. ground truthing). Consult with MOE species expert where possible.

<sup>22</sup> Performance standards are to be set by government and referenced here by the Project’s QPs

following documents, and where appropriate, to consider results of research being done nationally or internationally to develop suitable mitigation measures.

- “Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds ([Environment Canada 2007a](#)).”
- “Bats and Wind Turbines. Pre-siting and pre-construction survey [protocols](#). (2006)”
- “Wind Turbines and Birds: A Guidance Document for Environmental Assessment ([Environment Canada 2007b](#)).”

#### 4.4.2 RARE PLANTS, PLANT COMMUNITIES AND ECOSYSTEMS AT RISK VCS

This section is applicable for CEPs which may impact wildlife and wildlife habitats protected or managed through provincial conservation initiatives<sup>23</sup> and the [Species at Risk Act](#). Assess all rare plants, plant communities and ecosystems-at-risk components that have been recognized as a VC in the Scope of Assessment (**Section** Environmental Assessment methodology3.1).

When describing existing conditions, Proponents and their qualified professionals should:

1. Compile and map (1:20,000 TRIM) known information within the watershed or landscape unit(s) on:
  - a) Observations and potential occurrences of plants, plant communities and ecosystems or species at risk and of concern, defined by the [Provincial Conservation Framework](#) and the [Species at Risk Registry](#), include observations and potential occurrences of regionally important species and [communities](#); [wetlands](#) as defined by FRPA, or if appropriate the [Federal Policy on wetlands](#);
  - b) Areas legally designated pursuant to the *FRPA* (e.g. OGMA and WTRA);
  - c) Provincial Parks and Protected Areas, Ecological Reserves, and Conservation Lands;
2. Provide a general description of the BEC variants, plant communities and ecosystems present in the Project area.
3. Describe the distribution and abundance of rare plants, plant communities, and ecosystems at risk through known records and ecosystem mapping such as [Terrestrial Ecosystem Mapping](#) (TEM), [Predictive Ecosystem Mapping](#) (PEM), [Sensitive Ecosystem Inventory](#), where applicable.
4. Conduct rare plant [surveys](#)<sup>24</sup>, if required
5. Communicate with Provincial staff as well as relevant local and regional governments, university researchers, First Nations governments, and local naturalists, to obtain baseline information, and traditional ecological or community knowledge, where available.
6. Submit all red and blue-listed species sightings to the [BC Conservation Data Centre](#).

For the environmental impact assessment, Proponents and their qualified professionals should:

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<sup>23</sup> See 2 hotlinks in Attachment 2: (1)Conservation Framework and (2)Identified Wildlife Management Strategy

<sup>24</sup> Follow e-Flora BC Protocols for Rare Vascular Plant Surveys.

7. Assess direct impacts to rare plants including effects of soil disturbance and compaction from vegetation removal and disturbance and consider potential indirect impacts such as edge effects, increased windfall and increased species and numbers of invasive species resulting from altered microclimate.
8. Provide tables that quantify habitat loss and footprint impacts, in the Project area (by area and per cent).

Proponents and their qualified professionals are encouraged to consult the [provincial management practices](#) (BMPs) and [existing guidelines](#) when prescribing mitigation measures.

#### 4.4.3 FOREST AND RANGE CONSIDERATIONS

This section is applicable for CEPs which may impact forest and range values. The objective of this section is to provide baseline information and assess potential effects on forest and range considerations. Proponents must use appropriate qualified professionals, such as foresters, biologists, agrologists or engineers with the appropriate qualifications and licensed to practice in BC, to investigate and address the considerations noted below and should involve appropriate provincial staff on an as needed basis. (Additional forestry items are discussed in **section 5 Socio-economic Assessment**)

##### 4.4.3.1 FOREST HEALTH

Assess all forest health components that have been recognized as a VC in the Scope of Assessment (**Section 3.1**). The objective for forest health is to maintain the health of the forest immediately adjacent to CEP infrastructure or temporary development areas. Discuss how the CEP plans to maintain, and if possible, enhance the health of the forest immediately adjacent to any required CEP infrastructure or temporary development areas.

When describing baseline conditions for forest health, Proponents and their Qualified professionals should consider the following:

1. Identify any current localized forest health issues or concerns;

For the environmental impact assessment, Proponents and their qualified professionals should

2. Identify any increased forest health risks that may result from the Project (e.g. such as an increase in windthrow or tree death following construction that may result in an increase in bark beetles, slash that is retained that may increase bark beetles, etc.)
3. Prepare strategies to minimize typical local forest health pest impacts (e.g. removal of damaged trees, slash abatement, etc)

##### 4.4.3.2 INVASIVE PLANTS

Assess all invasive plants components that have been recognized as a VC in the Scope of Assessment (**Section 3.1**).

The objective for this section is to ensure protection of ecosystem integrity by preventing the spread or introduction of invasive plants. It is important that CEP developments do not introduce or increase the spread of invasive plants through their activities. The Province of BC operates the Invasive Alien Plant Program and should be contacted for further details on issues specific to the CEP area.

When proposing mitigation, Proponents and their QPs should consider the following strategies:

1. Using natural re-vegetation techniques in association with appropriate invasive species management / control;
2. Using appropriate Canada #1 certified seed mixtures to local specifications when hydro-seeding;
3. Minimizing soil disturbance;
4. Preventing spread by not transporting dirty equipment from infested sites to non-infested areas;
5. Identifying, monitoring, and reporting invasive plant species;
6. Identifying and undertaking control options.

#### 4.4.3.3 FOREST RESOURCE FEATURES<sup>25</sup>

Assess all forest resource feature components that have been recognized as a VC in the Scope of Assessment (**Section 3.1**).

When describing existing conditions, Proponents and their QPs should identify if the following features are present within the spatial boundary:

1. Karst systems. Where karst occurs in the Project area, a [karst](#) assessment may be required. Cave and karst features need to be protected – see [guidance](#) in [Attachment 2](#) for additional information;
2. Range developments (e.g. fences, cattle guards, or water sources);
3. Research or experimental areas (such as permanent sample plots, growth and yield plots, and research installations);
4. Permanent snow course sample sites;
5. Cultural heritage resources used by First Nations; and
6. Interpretive forest sites, recreation trails, sites, facilities, and features.
7. Trail or other recreation facility identified in s.57 of FRPA

If these areas have been legally identified under the GAR they may have a legal effect on a new CEP development and must be considered. Under FRPA (FPPR s.70), these features must not be damaged or rendered ineffective.

#### 4.4.3.4 RANGE AND FORAGE

Assess all range and forage components that have been recognized as a VC in the Scope of Assessment

When proposing mitigation measures for the Project, Proponents and their QPs should consider impacts to the following:

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<sup>25</sup> The *Forests and Range Practices Act* (FRPA) defines resource features as specific items legally designated under the *FRPA Government Actions Regulation* (GAR).

1. Livestock movement;
2. Natural range barriers;
3. Available forage;
4. Introduction or spread of noxious weeds;
5. Access to water sources;
6. Direct or indirect impacts to sensitive grasslands sites;
7. Increased public access to traditionally remote or inaccessible areas (potential for livestock disturbance, injury, poaching and litter impacts).

#### **4.5 SUMMARY OF ENVIRONMENTAL EFFECTS, MITIGATION, AND SIGNIFICANCE**

The objective of this section is to summarize assessment findings including:

1. An overview of the potential environmental impacts;
2. Mitigation strategies;
3. The significance of any residual environment effects that cannot or will not be mitigated (See [Appendix 4](#));
4. Additional information deemed to have relevance.

See [Appendix 3](#) for a sample interaction matrix between Project activities and Environmental VCs

## 5 SOCIO-ECONOMIC ASSESSMENT

*Proponents must utilize appropriate qualified professionals licensed to practice in BC (such as foresters, biologists, agronomists or engineers) to investigate and address the considerations noted below and involve appropriate FLNRO or Provincial government staff on an as needed basis.*

The objective of the socio-economic assessment is to assess the potential implications of the proposed Project on the local and regional economy, and communities. This section summarizes findings and includes any further information on the VCs that are relevant to the Project, and should be prepared in the same manner to the environmental assessment in section 4.

The following five sections should be discussed for each identified socio-economic valued component (VC): (1) existing condition, (2) impact assessment, (3) proposed environmental mitigation and offsetting, (4) significance of residual effects; and (5) summary. Each section is briefly discussed below:

1. **Existing conditions:** The section describes and summarizes the existing socio-economic characteristics of the Project's area and vicinity. Proponent should document the existing population distribution, demographics, and social profile within the Project boundaries as well as in the nearest community and urban centres to the Project areas. This description will include both Aboriginal and non-Aboriginal communities.<sup>26</sup> Local governments and local Chambers of Commerce may be useful contacts for Proponents for completing this section.
2. **Impact Assessment:** This section assesses the impacts based on the definition of the Project. The assessment of impacts should be based on information collected in accordance with acceptable academic or industry standards. The Proponent should include or make available, if requested, a copy of the data on which the assessment of the impact is based. In some cases, it may not be possible to fully assess all impacts from the Project due to either insufficient data being available or the assessment of the impact requiring input from agencies. In such cases, the Proponent should provide commitments for additional studies.
3. **Proposed Mitigation and Offsetting:** The objective of this section is to describe measures the Proponent will commit to undertaking to mitigate the potential adverse socio-economic impacts identified. Mitigation actions include the following in order of priority: avoidance, on-site mitigative measures, off-site mitigative measures, restoration, compensation, offsets, and additional conservation actions. Identify proposed mitigation measures including those considered in the design of the proposed Project. The mitigation plan should be supported by existing guidance and available literature. Use BMPs or best available science to inform mitigation and compensation options.

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<sup>26</sup> Statistics Canada has useful information for Proponents on regional economic and employment statistics <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E>

4. Significance of Residual Effects: This section evaluates the significance of the potential residual effects, after mitigation. If the impact will not meet the performance standards associated with the VC and will not fully mitigate the impact, characterize and evaluate the significance of the residual impacts. Explain the significance of any residual socio-economic effects of the Project on identified VCs. Evaluate the significance of the potential residual effects of the proposed Project considering magnitude, geographic extent, duration and frequency, reversibility, context and probability.
5. Summary: This section summarizes findings and includes any further information on the VC that is relevant to the Project. The Proponent should summarize the assessment in Impact Assessment Tables (See [Appendix 4](#))

## **5.1 REGIONAL ECONOMY**

Assess all regional economy components that have been recognized as a VC in the Scope of Assessment ([Section 3](#)).

Describe the socio-economic environment, including information on the following elements:

1. Local and regional economy, including economic drivers within the Project boundaries, and at a regional scale;
2. Regional labour market, including unemployment rates, labour supply, and training opportunities;
3. Existing economic undertakings in the area that could be affected by development of the Project.

## **5.2 RESOURCE OBJECTIVES, LAND USE PLANS OR OTHER DESIGNATIONS**

This section describes the management direction for natural resource objectives, plans or other designations (e.g. reserves) that have previously been legally established, established in policy (such as government approved land use plans or government to government agreements with First Nations), or are under development. These items may be for many values such as water quality, ecosystem management, fish protection, access management, habitat protection, forest management, cultural heritage, recreation, old growth, and others.

Please refer to related important links in [Attachment 2](#).

When discussing existing conditions for section 5.2, describe the following:

1. Current land uses in the study area (include Federal, Provincial, First Nation Land Use and Official Community Plan and zoning designations);
2. Provincially designated Protected Areas, reserves, land use designations (e.g. zoning, FRPA reserves, etc)
3. Current or proposed planning initiatives in the Project area;
4. Location of camps associated with the Project, regardless of the degree of permanence;
5. Location and description of past or present logging or mining activities (including leases, Area Based tenures, Community Forest Licences, etc), quarries and borrow areas, guide outfitting operations and recreation leases, as well as any uses of land in the area;
6. Location of any shellfish and finfish aquaculture facilities in the Project area;

7. Frequency of land use (e.g. hunting, trapping, fishing, logging, tourism or commercial recreation uses, boating, vacationing), including harvesting of species for the practice of hunting, fishing, trapping and gathering;
8. Spatial relationship(s) between the proposed Project and existing land encumbrances and uses;
9. Any private land acquisition needed for the Project;
10. A map illustrating the known transportation and travel axis in the study area (e.g. commercial shipping/ fishing routes, winter roads, recreational boating, sport fishing areas, kayak routes).

### **5.3 IMPLICATIONS FOR ADJACENT OR OVERLAPPING CROWN LAND AND RESOURCE VALUES**

Assess all implications for adjacent or overlapping crown land and resource values that have been recognized as a VC in the Scope of Assessment (**Section 3.2**). Demonstrate how the Project will minimize the impact to:

1. Timber harvesting opportunities, forestry operations and delivered wood costs;
2. Agriculture and farming opportunities; Crown land grazing and foraging;
3. Aquaculture (potential implications for marine, lake, stream and land based facilities should be considered);
4. Mining and Mineral Exploration activities, including aggregates and placer mining;
5. [Commercial Tourism](#);
6. [Public Outdoor Recreation](#);
7. Aesthetics and Visual Resources;
8. List and describe all existing provincially issued tenures, licences, leases, rights of way, or permits that occur within the Project vicinity. Consider and explain how the Project may potentially affect these tenure holders and discuss mitigative, compensatory, or avoidance measures to minimize or eliminate these impacts. Where applicable, discuss arrangements with impacted tenure holders such as easements or compensation. (For potential implications for tenure holders under the *Water Act*, please see section 5.5. below)

[Attachment 7](#) includes a list of considerations for assessing the implications for other Crown land and resource values.

#### **5.3.1 WILDFIRE PROTECTION**

Assess wildfire protection components that have been recognized as a VC in the Scope of Assessment (**Section 3.1**). The objective for wildfire is to minimize the risk of wildfire to public safety, resource values, and investments, during the CEP development and operation. Discuss the following in relation to the Project's wildfire management strategy:

1. Describe the Project's wildfire management strategy;
2. Confirm that the strategy is in compliance with the provincial *Wildfire Act* and regulations;
3. Indicate steps that will be taken to decrease the wildfire risk and address fuel management (fire hazard assessment and abatement), as well as all of the management and industrial requirements regarding fire control during industrial activities (such as land clearing);
4. Consider and review any applicable Wildfire Management Plans, including provincial, community or First Nations fuel and/or wildfire management plans.

5. Describe measures taken to manage the potential for ignition of forest fires associated with failed turbines.

See [Appendix 1](#) for additional information related to Wildfire Protection.

#### **5.4 NAVIGATION, TRANSPORTATION, AND ACCESS**

The Federal government has jurisdiction over many aspects associated with Navigation, Transportation and Access. For information with respect to the federal requirements please view the "[Navigational Impact Assessment Requirements for Privately Operated Hydro Electric Facilities](#)". It should also be noted that the federal government has requirements for Proponents working near water ("[Working Near Water in BC and Yukon](#)" link in [Attachment 3](#)). Both direct and indirect effects to Navigation must be included in the assessment.

1. For Projects that involve works in or near water identify the river dimensions at the proposed points of crossing or diversion, and the location of any existing constructed or natural obstructions within the creek or its tributaries that are deemed navigable by a Navigable Waters Protection Officer within the defined study area boundary.
2. Consider the Aboriginal and local communities' knowledge of navigation, transportation, and access in the Project area and include a description of this knowledge.
3. Describe the current uses of the Project area for navigation, transportation, and access, and identify those that would become dangerous or not accessible following Project construction. Include detailed information and design drawings of proposed crossing and instream structures indicating:
  - a) location of any proposed works;
  - b) name of waterway(s);
  - c) mapping coordinates of the proposed crossing/ diversion points and instream structures (latitude/longitude);
  - d) applicable chart and topographic map number;
  - e) legal descriptions<sup>27</sup>;
  - f) physical characteristics of the waterway, i.e., length, width, depth, seasonal flow and fluctuations;
  - g) gradient at crossing/ diversion site;
  - h) construction methodology; and
  - i) photographs of any proposed crossing sites;
4. Description of any crossings in the pathway of a transmission corridor that may involve Navigable Waters or transportation;
5. Detailed information (as specified above) and design drawings of proposed aerial crossings or instream structures;
6. Detailed information (as specified above) and design drawings of proposed bridge crossings structures, whether temporary or permanent;
7. Description of any crossings in the pathway of the access road(s) that may involve Navigable Waters or transportation;
8. Description of any barge facilities that may impact on Navigable Waters or transportation;

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<sup>27</sup> See Attachment 1 for instructions on legal descriptions for unsurveyed Crown land

9. Description of all known current, past, or likely future usage for navigation.

#### 5.4.1 ROADS BRIDGES, AND RAILROADS

Assess all roads, bridges, and railroads that have been recognized as a VC in the Scope of Assessment (Section 3.1).

Proponents will need to use a qualified professional engineer to design and oversee construction of the roads, bridges and railroads needed for the Project. Engineer sign off may be required for many of the items listed in this portion of the Development Plan. Proponents should discuss specifically where an Engineer's sign off is needed with their Project Lead.

Roads are regulated by different agencies and levels of government (e.g. municipal, provincial and federal) depending on the use and Project specific circumstances. From a provincial perspective, roads can be tenured in a variety of ways (i.e. under different Acts or regulations). Proponents must outline the long term and short term needs for each road, or portion thereof, and under what jurisdiction the roads will be managed for the duration of the Project. See [Appendix 1](#) for information on the various provincial statutes applicable to roads.<sup>28</sup>

Discuss how the Project will ensure CEP access roads (including bridges, culverts, etc) are constructed in a structurally sound manner and maintained in a safe condition for industrial and other users. Discuss where applicable the following anticipated Project impacts and mitigation measures:

1. Impacts on road user safety, stability or maintenance of the road, and the environment from modification or realignment of existing roads, installation of penstock, transmission lines or other works.
2. Impacts on timber harvesting operations in the immediate vicinity of the works or in the watershed from installation of roads to access the penstock, transmission lines, and other works.
3. Effect on future access to the forest land base by industrial users and recreational interests, including off-road motorized users, which may result in additional impacts.

If the Project will be using existing forest roads, it is important to note that many forest roads already have a variety of tenure granted rights and/or agreements that need to be identified and addressed early in CEP application process. Discuss the following:

4. Potential impacts on holders of authorizations (including Forest Service Roads (FSRs), Road Permits, Road use agreements, and MFLRNO works permits);
5. Potential impacts on the forest road and other elements at risk;
6. Safety of forest road users;
7. Stability of the forest road and associated infrastructure;
8. Possible impacts on environmental, social and economic values;
9. The costs of forestry road inspections and maintenance expenses;

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<sup>28</sup> Proponents are also encouraged to conduct waterway assessments using the ['Minor Works and Waters Order'](#) available from Transport Canada

10. The legal rights of those authorized to use the forest road or to harvest Crown timber or conduct other industrial activities;
11. Whether affected parties are in agreement with proposed mitigation and compensation measures.

Please review the following provincial documents, which provide more detailed information that should be addressed in the Development Plan. Although the documents were developed specifically for water power Projects, there is information contained within them that may be useful for other types of CEPs. Links to these documents can be found in [Attachment 2](#).

- [“Waterpower Projects: Guidelines for Works that may Impact Forest Roads or Timber Tenures and Waterpower Projects”](#)
- [“MFR Design Criteria for Works that may Impact Forest Roads or Timber Tenures.”](#)

Describe how the Project will be designed to maximize safety and minimize disruption for the public using public bridges, roads and railroads. Provide information on the following:

12. Permissions needed/ obtained to access the highway with industrial machinery or equipment;
13. Requirements to upgrade roads with turning lanes for safe access;
14. Commercial and industrial use of public roads;
15. Possible security/ bonding to ensure damage to public roadways resulting from industrial use is repaired;
16. Plans to ensure debris on public roads resulting from construction or transportation of materials to the site is removed;
17. Plans to ensure bridges are suitable and safe for industrial weight and traffic;
18. Plans to ensure safe transport of construction materials;
19. Details on licenses required/ obtained for over-height or over-length vehicles,
20. Information on the correct insurance of construction machinery, vehicles, etc;
21. Adequate signage and marshalling on roads during times of heavy industrial use ( certified flags people, etc)

#### 5.4.2 FLIGHT PATH

Assess all flight paths that have been recognized as a VC in the Scope of Assessment (**Section 3.2**).

Discuss how the Project will be designed to minimize, mitigate or avoid potential impacts on existing flight paths or aerial routes in the vicinity of the site (e.g. height of towers, safety beacons on turbines, height/ marking of transmission lines, etc). Discuss where the closest air field is in relation to the Project.

#### 5.4.3 PUBLIC ACCESS

Assess all public access components that have been recognized as a VC in the Scope of Assessment (**Section 3.1**). Crown lands are often used by a variety of groups. Please provide a detailed operational plan for the management of public access to the site, such as plans for fencing, installing gates at certain locations, restricted access during construction/ maintenance, onsite security personnel, signage, etc. Please note that a justification for restricting public access to Crown lands is required.

Proponents must contact the Ministry of Transportation and Infrastructure (MOTI) as early as possible in the Project development to discuss accessing roads under MOTI's jurisdiction and/ or proposing the location of transmission lines within existing road corridors. See [Attachment 2](#) for more information on MOTI requirements.

## 5.5 WATER RIGHTS

Assess all water rights that have been recognized as a VC in the Scope of Assessment (**Section 3.1**). (If the Project will be constructed entirely on private land, please refer to [Appendix 2](#)). Some items identified under Section 5.2 may also be applicable to this section.

Proponents will address the following items:

1. Are there other lands including private land and Crown Land under separate tenure that will be, or are likely to be, directly affected by the Project or its associated works? If yes, please provide a legal description for each property that will be affected by the works, or flooding.
2. Please provide a list of Crown Land tenure holders and landowners who are potentially affected by the Project or its associated works, and discuss potential mitigative measures to reduce impacts.
3. If applicable, please include a discussion about the requirement for a Permit over Crown land under the *Water Act* (PCL). (Note that most Projects which are larger in scale, such as CEPs require a *Land Act* tenure. PCLs allow non-exclusive use of Crown land and usually issued for less significant works)
4. If applicable, provide details of the arrangements with private landowners to use the land for the Project, or components of the Project (signed letters of authorization from landowners, registered easements, rights of way, etc). Please indicate whether the authorization to use private land expires upon change of ownership.
5. Provide copies of the correspondence issued to all property owners notifying them of the proposed Project and providing opportunities for their input. Please note that "affected property owners" include any private land owner whose property is physically impacted by the proposed water licence, Water Licensees whose rights may be impacted, as well as riparian landowners who might be affected by the Project.
6. Identify whether the proposed point(s) of diversion will be located on a stream, the waters of which flow through an Indian Reserve. For any such proposals, it is necessary to notify the appropriate Band office of your proposal. If applicable, list the affected First Nations; provide copies of correspondence with the affected First Nations; and summarise discussions that have occurred with these First Nations with respect to the Project. Please describe any known water users downstream with consideration to effects on their water usage, interruption, compensation and notification. (This could include unlicensed water users, water use for navigation such as kayaking, water use for bathing or spiritual purposes etc.)
7. Discuss the Project's potential implications with respect to riparian rights for any land owners. Examples of impacts to riparian rights include: alteration of flows, erosion or accretion impacts, changes to water level regimes in lakes etc.
8. Discuss the Project's potential implications with respect to existing water rights. This includes discussion about how other existing water licensees may be affected by the proposed Project (e.g. assured access to water during times of shortage, altered water level regimes in lakes etc.)

9. Include current activities in the watershed and locations of permitted and/or non-permitted discharges to water that may affect drinking water quality. (see [Appendix 1](#) for links to *Drinking Water Protection Act* requirements and guidelines)
10. Discuss whether any expropriation of private land is required for the Project. If expropriation is being contemplated, discuss the steps that will be taken to complete expropriations, including public consultation, landowner compensation, etc. (This is a last resort option to be considered after all reasonable attempts to access land have failed. It is available only after a Water License has been issued.) Refer to the *Water Act* Regulation [section](#) on expropriation.

## 5.6 HUMAN HEALTH AND SAFETY

Assess all human health and safety components that have been recognized as a VC in the Scope of Assessment ([Section 3.1](#)). This section will describe the existing conditions and potential hazards to human health and safety arising from the Project. (Consider potential implications for safe enjoyment of nearby residential areas or tourism uses, including noise, dust, smoke, odour, vibration or other perceivable health implications resulting from construction, terrain stability risks, landslides and sedimentation, operation, maintenance or transmission lines). Proponents should include an assessment of the potential implications for drinking water and air quality for local communities.

Provide a detailed Emergency Response Plan that outlines the planned response, equipment needed and action plan for medical emergencies, fire or natural hazard events, environmental spills, etc. Please include an overview of the proposed training that will be provided to ensure the plan is followed and a list of the persons responsible within your company for ensuring compliance with the Emergency Response Plan and worker safety <sup>29</sup>

Where a dam is associated with the Project the following information must be provided:

1. An estimation of the magnitude of the dam break flood hydrographs resulting from various hypothetical dam failure scenarios occurring with the reservoir at normal storage elevation and maximum storage elevation.
2. For those structures that pose risk to human life, an inundation map delineating the maximum extent of flooding anticipated by a sudden breach. The mapping will continue downstream until the expected flooding is within the 100-year floodplain elevation.
3. The downstream hazard classification as defined by Schedule 1 of the [Dam Safety Regulation](#) which reflects the current and proposed conditions of development in downstream areas and a description of how the downstream impacts relate to the chosen rating. The most serious potential consequences of failure of those listed shall be used to establish the appropriate downstream hazard classification. Please note the Regional Dam Safety Officer is responsible for deciding the final consequence rating.

See links in [Appendix 1](#) and [Attachment 2](#) for the provincial Dam Safety Regulations and additional information.

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<sup>29</sup> For a sample of the types of items to include in the Emergency Response Plan, see the Mining and Minerals ERP document referenced in the hotlinks in Attachment 2

## **5.7 SUMMARY OF SOCIO-ECONOMIC EFFECTS, MITIGATION, AND SIGNIFICANCE**

Summarize assessment findings, including:

1. The potential socio-economic impacts of the Project at local, regional and provincial scales, where appropriate; ([Appendix 3](#) and [Appendix 4](#))
2. Potential health and safety impacts;
3. Mitigation strategies;
4. The significance of any residual socio-economic effects.

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## 6 PROJECT ENGAGEMENT ACTIVITIES

This section summarizes the Proponent’s past and proposed engagement initiatives with the public, interested parties and various levels of government.

### 6.1 RECORD OF ENGAGEMENT ACTIVITIES

Describe any engagement or information sharing activities that took place with federal, provincial, regional, and local government agencies, and the public. Include information on public meetings and open houses, one-on-one meetings with government staff or interested parties, publication of articles on a Project in the written media, (journal articles, community newspapers, etc) interviews on local radio and television, participation in community events/fairs, etc.

This section will include a description of the issues and solutions presented during engagement and how these are addressed in the final Project plan. If the issues raised during engagement on the Project are not addressed in the final Project plan, you must provide a rationale.

**Table 6: Summary of Issues raised during public/ stakeholder engagement**

Group consulted and contact names (e.g. Mr. Joe Smith, Sierra Club)	U/ F/ C *	Dates of meetings, calls, publications, correspondence, events	Summary of issue raised and proposed solutions	Mitigative measures adopted/ rationale for not adopting	Proponent’s comments

\*U = Engagement underway; F = Engagement planned for Future date; C = Engagement Complete

See Section 7 for First Nation consultation requirements and reporting.

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## **7 FIRST NATION INFORMATION REQUIREMENTS**

### **7.1 CONSULTATION OBLIGATIONS OF THE PROVINCE**

The Province of BC is legally required to consult with First Nations prior to making decisions on Crown land and resources that have the potential to affect Aboriginal Interests (claimed or proven rights or Treaty rights). Recent case law states that the Province may delegate certain operational aspects of consultation with First Nations to Proponents, acknowledging that the Proponents often have access to more detailed information on the planned phases and components of the Project (especially in earlier stages). If any aspects of consultation are delegated, it is important that all parties understand when consultation is being done on behalf of the Province and when the discussions are bi-lateral between the Proponent and the First Nation(s). All aspects of consultation must be documented. Proponents are advised to discuss their interactions with First Nations with the CEP's Consultation Coordinator and obtain feedback as to the content and structure of consultation undertaken on behalf of the Province.

Whether or not aspects of consultation are delegated by the Province to a Proponent, Proponents are encouraged to share information about the Project with First Nations and attempt to address Aboriginal concerns that may be raised. Documentation of information sharing and Proponent efforts to address any Aboriginal concerns is very helpful to the Province in its efforts to fulfill the Province's legal consultation obligations.

### **7.2 IDENTIFICATION OF FIRST NATIONS**

This section will identify the local First Nations that could potentially be affected by the Project. Proponents are encouraged to use the provincial, publically available, [Consultation Area Database](#) to identify the appropriate First Nations<sup>30</sup>.

### **7.3 PROJECT SETTING – TRADITIONAL USE AND ABORIGINAL RIGHTS/TITLE ISSUES IN THE PROJECT AREA<sup>31</sup>**

This section will discuss the traditional use study (TUS), traditional knowledge (TK) and traditional land use (TLU) information for each of the identified First Nations. The objectives and approach taken to collect, verify and record the information for each First Nation will be considered and discussed. Results of the TLU impact assessment will also be presented. The TLU impact assessment will consider all potential environmental effects.

This section will also discuss potential impacts of the proposed Project on the treaty rights and interests which arise under applicable treaties between First Nations, the Province, and Canada.

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<sup>30</sup> see link in Attachment 2

When preparing the impact assessments for sections 7.3 to 7.5, it may be useful to consider the following:

1. Potential social and/or economic effects to Aboriginal groups that may arise as a result of the Project, including a discussion of any factors that may inhibit or foster the flow of economic and other benefits to Aboriginal communities.
2. Potential effects on current and proposed uses of land and resources by Aboriginal groups for traditional purposes, including effects on hunting, fishing, trapping, cultural and other traditional uses of the land (e.g. collection of medicinal plants, use of sacred sites), as well as related effects on lifestyle, culture and quality of life of Aboriginal groups and proposed measures to avoid, mitigate, compensate or accommodate effects on traditional uses;
3. Effects of alterations to access into the area on Aboriginal groups, including deactivation or reclamation of access roads;
4. Effects of the Project on heritage and archaeological resources in the Project area that are of importance; and
5. Significance of any residual effects of the Project on First Nations, archaeological, and historical resources. Reference supporting documents and, where applicable, attach them as appendices to the Development Plan.

#### **7.4 PROJECT SETTING - ARCHAEOLOGICAL RESOURCES**

This section will present a summary of archaeological resources baseline condition and related First Nations considerations.<sup>32</sup>

The section will identify potential effects on archaeological resources and consider each requirement of the [Heritage Conservation Act, 1996](#). Results from the archaeological overview assessment will be used to define and describe the geographic boundaries of the archaeological impact assessment (AIA). The Development Plan will identify proposed mitigation measures, as recommended in the AIA, for sites where impacts cannot be avoided. Significance of identified residual effects will be determined.

Based on information provided by Aboriginal groups, or available information from other sources, identify:

1. Any potential social and/or economic effects to Aboriginal groups that may arise as a result of the Project, including a discussion of any factors that may inhibit or foster the flow of economic and other benefits to Aboriginal communities.<sup>33</sup>
2. Any potential effects on current and proposed uses of land and resources by Aboriginal groups for traditional purposes, including effects on hunting, fishing, trapping, cultural and other traditional uses of the land.

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<sup>32</sup> Please see this website for additional information on archaeology in BC <http://www.jti.gov.bc.ca/archaeology/>

<sup>33</sup> See Attachment 2 for relevant links and databases on measuring community well-being

## **7.5 CONSULTATION<sup>34</sup> WITH FIRST NATIONS**

This section will discuss the consultations undertaken for the Project between the Proponent and First Nations. It will describe the methods used to ensure that there were as many opportunities as possible for First Nations to identify interests and concerns related to the Project. The Development Plan will describe the issues raised during these consultations and the ways in which the Proponent addressed these issues including description of changes to design made due to First Nations comments as appropriate. Please indicate where agreements have been reached between you and the First Nation(s) and where applicable, provide details of the agreement and its implications for the Project and potential mitigation of impacts for First Nations.

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<sup>34</sup> It should be noted that some discussions with First Nations will be considered official consultation, where this has been delegated by the Province and agreed to by all parties. In other cases, information sharing and engagement with First Nations will proceed outside of formal consultation that will be done to meet the Province's obligations. Proponents can use the same log to record consultation and engagement, but should indicate which applies (i.e. whether the communication is consultation or engagement)

**Table 6: Communications Log with First Nations**

### Communications Log

This table tracks the process component of information sharing or consultation undertaken by the Proponent as delegated by the Province and should contain the factual and chronological documentation of all types of engagement and information exchanged. It is particularly important to record both verbal and written communication exchanges. It is important to attach all correspondence sent to First Nations and notes from any meeting staff may attend with First Nations.

First Nation	Source (e.g. who sent First Nation a letter or attended a meeting)	Medium	Date	Comments
		Choose an item.	Enter date	Describe the nature of the communication, materials shared, and result of the communication. Record specific issues in the Concerns and Accommodations Tracking Table. Insert copy of correspondence or document as embedded object if appropriate or include a hard copy as an appendix in the package that goes to decision makers.  Copy and paste row for each new communication.

**Table 7: Aboriginal Concerns and Accommodations Tracking**

**Aboriginal Concerns and Accommodations Tracking Table**

This table records all the critical information that arises during any Proponent led information sharing or consultation. It is designed to capture the information needed for the provincial consultation coordinator and decision makers to determine if aboriginal concerns have been recorded and appropriately accommodated.

First Nation	Consultation Stage	Aboriginal Concerns	Analysis of Potential Impact/ Concern Identified	Potential Accommodation
	Choose an item.	Describe the nature, extent and location of the Aboriginal Concern under consideration. Copy and paste row for each individual Aboriginal concern.	Briefly, summarize the potential impacts including the type, severity, permanence, size and location and how they may affect the Aboriginal Concern <sup>35</sup> under consideration. Information can be copied and pasted from the Preliminary Assessment Table. If there are multiple potential impacts to, or accommodation measures for, and Aboriginal concern, create a new row for each impact/accommodation measure.	Identify if accommodation is required, rationalizing why or why not. If accommodation is required, summarize the proposed accommodation measures that relate to a particular impact or concern identified. Describe any First Nation views on how to address the potential impact/concern.

<sup>35</sup> Aboriginal Interests refer to claimed or proven aboriginal rights (including title) and treaty rights. Staff may list concerns raised by First Nations that do not directly pertain to Aboriginal Interests (e.g. First Nations requests for shared decision making and capacity funding). Listing First Nations concerns that are not legally defined as Aboriginal Interests and how the province responded to them is important as it helps to demonstrate if the consultation process has been reasonable.

## **7.6 POTENTIAL PROJECT EFFECTS ON FIRST NATION INTERESTS**

This section will include an assessment and description of identified potential effects of the Project that could directly affect First Nations at any phase of Project development – during construction, operations, or where relevant, decommissioning. This will include a description of identified First Nations components of the Project setting that will be, or could be, affected by Project development. It will include a summary of impact assessment findings, indicating the potential impacts identified and document any relevant non-confidential agreements with First Nations (e.g., any benefits agreement). The Application will also include a summary of mitigation and management measures proposed to manage potential effects on First Nations.

## **7.7 COMMITMENTS TO FIRST NATIONS**

This section will identify key issues, concerns, and Project design interests from the various First Nations (at any phase of Project development, i.e., during construction, operations, or where relevant, decommissioning), and will contain a description and summary table of CJV's agreements with, and commitments to, the various First Nations. A summary of proposed management commitments including specialized and standard management practices will be included in Section 7.

## 8 MONITORING PROGRAMS

### 8.1 CONSTRUCTION ENVIRONMENTAL MONITORING

The Construction Environmental Management Plan (CEMP) details the environmental practices and procedures that will be applied to and adhered to during the construction phase of the Project. The goal of the CEMP is to address, prevent or manage potential environmental and socio-economic effects. The CEMP submitted in a Development Plan is a draft that may be revised based on Provincial review and consultation with the Proponent. For water power projects, the need to comply with the CEMP will be referenced as a condition within the water license, and a CEMP approved by the DM under the *Water Act* will be required prior to provision of the Leave to Commence Construction (LCC).

Proponents should employ independent qualified environmental monitors to ensure environmental objectives and legal obligations are being met. Monitors must be given the authority to modify or alter activities or stop work where necessary until issues of [potential or actual environmental damage are resolved](#).<sup>36, 37</sup>

CEMP may include, but is not limited to, the following information:

1. Air Quality and Dust Control Plan
2. Noise Management Plan
3. Surface Water Quality Plan
4. Erosion and Sediment/ Soil Management Control Plan
5. Contaminated Sites
6. Hazardous Materials Management Plan
7. Solid Waste Management Plan
8. Spill Prevention and Emergency Response
9. Archeological Monitoring Plan
10. Habitat Mitigation/Compensation Plan
11. Landscape Design and Restoration Plan
12. Ungulate Winter Range/ Mountain Goat Monitoring Plan
13. Access Management Plan
14. Human-Wildlife Conflict Management
15. Metal Leaching/Acid Rock Drainage ([ML/ ARD](#)) management plan

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<sup>36</sup> Scope of information and reports by the Environmental Monitor can be found at: [http://www.env.gov.bc.ca/wsd/water\\_rights/waterpower/cabinet/appendix\\_h.pdf](http://www.env.gov.bc.ca/wsd/water_rights/waterpower/cabinet/appendix_h.pdf)

<sup>37</sup> Scope of information and reports by the Independent Engineer can be found at: [http://www.env.gov.bc.ca/wsd/water\\_rights/waterpower/cabinet/appendix\\_g.pdf](http://www.env.gov.bc.ca/wsd/water_rights/waterpower/cabinet/appendix_g.pdf)

Approvals of the CEMP for water power projects are normally undertaken after the water license has been granted, since many of the essential details required in these plans may be unavailable until after final construction drawings have been prepared.

## **8.2 OPERATIONAL ENVIRONMENTAL MONITORING**

The Operational Environmental Management Plan (OEMP), or alternatively the Long-term Monitoring Plan, typically comprises three types of monitoring: (1) compliance, (2) effectiveness, and (3) response monitoring. Compliance monitoring verifies compliance with conditions set forth in the permits and licenses issued to the Proponent enabling the construction and operation of the CEP. Effectiveness monitoring evaluates the effectiveness of mitigation measures on key environmental variables and the accuracy of the environmental assessment in predicting the efficacy of measures adopted to avoid or minimize adverse environmental impacts. Meanwhile, response monitoring refers to the long-term monitoring of parameters to determine if the Project is having an effect on the environment. Thus, while effectiveness monitoring examines VCs with respect to specific mitigation measures, response monitoring seeks to establish whether operation of the Project as a whole is having long-term effects on VCs. More details on these types of monitoring are provided in [Attachment 6](#).

For compliance monitoring, Proponents will likely be required to provide a concise annual monitoring report that specifically confirms compliance with regulatory/permit conditions for the life of the Project. For effectiveness and response monitoring, the monitoring and reporting requirements will likely be more flexible. Typically, the OEMP will describe monitoring to be conducted on key parameters over an initial period of 5 years, with the objective being to confirm that licensed operations do not result in unacceptable impacts to specified VCs and habitat parameters. The monitoring program is then reviewed to determine which parameters require ongoing monitoring. In order for reliable comparisons to be made, the OEMP requires that the collection of post-construction monitoring data follows the same methodology as used for baseline data collection. The baseline data set also provides the information on species VCs and habitat that acts as the foundation for the impact assessment within the Development Plan. DMs typically require a draft plan and possibly substantial completion of the OEMP with the majority of baseline data collection completed. This is typical for components of the monitoring program which require complex and time-consuming data analysis.

For water power Projects, [Hatfield et al. \(2007\)](#) provides relevant guidelines. [Monitoring guidelines](#) also exist for wind power CEPs.

## 9 FEDERAL REQUIREMENTS

When preparing a Development Plan, Proponents are often considering and addressing Government of Canada requirements. Federal employees have reviewed and provided input to the draft provincial Development Plan information requirements and where federal requirements are known, a list of these is provided in [Attachment 4](#).

Summarize the federal requirements associated with the Project and include information on the status of each requirement and the appropriate federal contact person. It is recommended that you provide the information in a table for easy reference.

**Table 8: Federal Requirements**

Agency	Nature of Authorization/ Approval requested	Status	Comments	Contact
<i>Example1: Fisheries and Oceans Canada</i>	<i>Authorization for HADD/ Operational Statements</i>	<i>Submitted Oct-02-2011</i>	<i>Operational Statements will be followed, Authorization not required</i>	<i>Joe Smith, DFO Smithers Phone/ Email</i>

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impact management measures, as identified in the Development Plan’s “Table of Proposed Commitments,”; or

3. For the consideration of the Responsible Authorities, it is the opinion of (*Company Name here*) that it is uncertain at the time of the review whether or not the Project is likely to cause significant adverse environmental, socioeconomic/community, First Nations or other effects, taking into account the implementation of appropriate impact management measures, as identified in the Development Plan’s “Table of Proposed Commitments”.

## **REFERENCES**

To be completed by the Proponent.

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# GLOSSARY OF TERMS

## **7Q10**

The lowest stream flow for seven consecutive days that would be expected to occur once in ten years (7 day low flow within a 10 year return frequency).

## **Anadromous**

Refers to fish that spend most of their life in saltwater but migrate to freshwater to spawn. Salmon, trout and Arctic char that live in the ocean are prime examples of anadromous species.

## **Ecological Threshold**

The value for a given performance measure that indicates the attainment of desired future condition (i.e., objective has been met). This will be informed by literature review, recovery teams, recovery strategies, etc.

## **Headpond**

Headpond is storage of water that has a STATIC water level so as to create sufficient HEAD (pressure) to allow production of electricity. No water licence is issued for this purpose. Flooding of crown land associated with headponds is authorized under the *Land Act*.

## **Operational Statements**

Documents developed by DFO for Proponents that provide nationally consistent advice on standard measures to apply to selected activities that are low risk to fish habitat.

## **Performance Measure:**

Measurable element related to the VC(s) that indicates the degree to which objectives are being achieved (METRIC). A good performance measure is measureable, precise, consistent and sensitive to change

## **Qualified Professional**

An applied scientist or technologist specializing in a relevant applied science or technology who, through demonstrated suitable education, experience, accreditation and knowledge relevant to the particular matter, may be reasonably relied on to provide advice within their area of expertise, and who, in British Columbia is registered with their appropriate professional organization, and acting under that association's Code of Ethics and subject to disciplinary action by that association.

## **Residual Effects**

An environmental effect that remains, or is predicted to remain, even after mitigation measures have been applied.

## Storage

Storage reservoir is storage of water which has fluctuating water levels and the stored water is used to generate electricity during low flow periods. A water licence is required for the amount of water used from storage. This storage water licence authorizes any works i.e. dam. Flooding of crown land associated with storage to generate power is authorized under a Permit over Crown Land (PCL) issued under the *Water Act*. So, it is important that the water power development plan explain clearly HOW the “stored” water is being used in a power Project.

## Works:

Any activity that results in alteration of Crown land or resources. "Works" as defined in the *Water Act*, means

- a) anything capable of or used for
  - (i) diverting, storing, measuring, conserving, conveying, retarding, confining or using water,
  - (ii) producing, measuring, transmitting or using electricity,
  - (iii) collecting, conveying or disposing of sewage or garbage, or
  - (iv) preventing or extinguishing fires,
- b) booms and piles placed in a stream,
- c) obstructions placed in or removed from streams or the banks or beds of streams,
- d) changes in and about a stream,
- e) access roads to any of the works referred to in paragraphs (a) to (d), and
- f) except in Parts 2 and 3, unless made applicable by a regulation under section 1.1,
  - (i) wells,
  - (ii) wellheads,
  - (iii) anything that can be or is used for injecting or otherwise adding water or any other substance to a well,
  - (iv) anything that can be or is used to construct a well, deactivate a well or close a well,
  - (v) anything that can be or is used for exploring for, testing, extracting or monitoring ground water,
  - (vi) anything that can be or is used for disinfecting a well,
  - (vii) an injection system attached to a work that is used for conveying, from a well, ground water that will be used for applying fertilizers or pesticides,
  - (viii) anything that can be or is used in relation to a monitoring well or a well made for the purpose of ground water remediation, and
  - (ix) access roads to wells.

## APPENDIX 1: PROVINCIAL PERMITS, PROCESS, AND PURPOSE

Statute	Agency	Authorization	Purpose
<b><i>Agricultural Land Commission Act Procedure Regulations</i></b>	Agricultural Land Commission	Non-Farm Use/ Exclusion	Approval to use land that is designated within the Agricultural Land Reserve for a Clean Energy Project may require an application for Non-Farm Use under the ALCA. <a href="http://www.alc.gov.bc.ca/">http://www.alc.gov.bc.ca/</a>
<b><i>Dike Maintenance Act (DMA)</i></b>	MFLNRO	DMA approval	Dike Safety, General Information and forms <a href="http://www.env.gov.bc.ca/wsd/public_safety/flood/structural.html">http://www.env.gov.bc.ca/wsd/public_safety/flood/structural.html</a>
<b><i>Drinking Water Protection Act and Regulation</i></b>	Local Health Authority (LHA)	Construction Permit, s.6	Authority to commence construction, installation, alteration or extension of a water supply system. Required for commissioning of a new water system and also for every structural or mechanical change to an existing water system that may occur over time, but not required for routine maintenance. Construction, installation, alteration, or extension of any part of a water supply system without a valid Construction Permit is an offence under s. 45 of the Act. Search “water supply” on the home page of each Health Authority <a href="http://www.health.gov.bc.ca/socsec/">http://www.health.gov.bc.ca/socsec/</a> Example from Vancouver Island HA: <a href="http://www.viha.ca/NR/rdonlyres/BA469B79-2A46-4215-8E8F-515619A16DAC/0/GUIDELINESFORTHEAPPROVALOFWATERWORKS.pdf">http://www.viha.ca/NR/rdonlyres/BA469B79-2A46-4215-8E8F-515619A16DAC/0/GUIDELINESFORTHEAPPROVALOFWATERWORKS.pdf</a>
		Operating Permit, s.7	Authority to provide a drinking water service to users. <a href="http://www.health.gov.bc.ca/protect/dwact.html">http://www.health.gov.bc.ca/protect/dwact.html</a>
<b><i>Environmental Assessment Act</i></b>	EAO	EA Certificate	Required prior to undertaking any activity on a reviewable project. Provides an integrated process for identifying and evaluating a project’s potential adverse effects (environmental, social, health, heritage, and economic) and avoiding or mitigating any such effects where practicable. Ensures issues and concerns of public, First Nations, stakeholders and government agencies are considered. Comprehensive and efficient environmental assessments result in well-informed and timely decision-making that supports sustainable development <a href="http://www.eao.gov.bc.ca">http://www.eao.gov.bc.ca</a>
<b><i>Environmental Management Act</i></b>	MOE	Air Discharge Permit	Authority to discharge air contaminants into the environment, e.g. Incinerator for camps serving >100 persons. <a href="http://www.env.gov.bc.ca/epd/waste_discharge_auth/index.htm">http://www.env.gov.bc.ca/epd/waste_discharge_auth/index.htm</a> <a href="http://www.env.gov.bc.ca/epd/waste_discharge_auth/pdf/process.pdf">http://www.env.gov.bc.ca/epd/waste_discharge_auth/pdf/process.pdf</a> <a href="http://www.env.gov.bc.ca/epd/waste_discharge_auth/app_forms/index.htm">http://www.env.gov.bc.ca/epd/waste_discharge_auth/app_forms/index.htm</a>

Statute	Agency	Authorization	Purpose
			<p>For Refuse and Air Discharge:  <a href="http://www.env.gov.bc.ca/epd/waste_discharge_auth/app_forms/index.htm">http://www.env.gov.bc.ca/epd/waste_discharge_auth/app_forms/index.htm</a>            -Publish notice of application in the BC Gazette and local news media            -30 day public notification period            -Application fees            -Final technical assessment report, if applicable            -Consultation report</p> <p>Application Guidance for air discharge:  <a href="http://www.env.gov.bc.ca/epd/waste_discharge_auth/index.htm">http://www.env.gov.bc.ca/epd/waste_discharge_auth/index.htm</a>  <a href="http://www.env.gov.bc.ca/epd/waste_discharge_auth/pdf/process.pdf">http://www.env.gov.bc.ca/epd/waste_discharge_auth/pdf/process.pdf</a>  <a href="http://www.env.gov.bc.ca/epd/waste_discharge_auth/app_forms/index.htm">http://www.env.gov.bc.ca/epd/waste_discharge_auth/app_forms/index.htm</a></p> <p>Application Guidance for hazardous waste:  <a href="http://www.env.gov.bc.ca/epd/hazwaste/index.htm">http://www.env.gov.bc.ca/epd/hazwaste/index.htm</a></p> <p>Hazardous Waste -Registration form:  <a href="http://www.env.gov.bc.ca/epd/hazwaste/generators/index.htm">http://www.env.gov.bc.ca/epd/hazwaste/generators/index.htm</a>            Operational plans and/or various other plans may be required.  <a href="http://www.env.gov.bc.ca/epd/hazwaste/generators/index.htm">http://www.env.gov.bc.ca/epd/hazwaste/generators/index.htm</a></p>
	MOE	Effluent Discharge Permit	Authority to discharge effluent into the environment.
	MOE	Fuel Storage Permit	Authority to store fuel.
	MOE	Refuse Permit	Authorization for municipal solid waste (solid waste from camps >100 persons).
<b>Environmental Management Act - Hazardous Waste Regulation</b>	MOE	Hazardous Waste Registration	Registration and application for a provincial identification number is required in order to produce, store, treat, recycle or discharge more than a prescribed quantity of hazardous waste within 30 days.
<b>Environmental Management Act - Municipal Sewage Regulation</b>	MOE	Sewage Registration	<p>Authority to construct and use a sewage disposal facility (if necessary depending on design sewage flow of camp) for camps &gt;100 persons.            -Municipal Sewage Regulation:  <a href="http://www.env.gov.bc.ca/epd/mun-waste/regs/msr/">http://www.env.gov.bc.ca/epd/mun-waste/regs/msr/</a>            -Registration form and guidance:</p>

Statute	Agency	Authorization	Purpose
			<a href="http://www.env.gov.bc.ca/epd/epdpa/mpp/gomsrramsd.html">http://www.env.gov.bc.ca/epd/epdpa/mpp/gomsrramsd.html</a> -Environmental Study guidelines: <a href="http://www.env.gov.bc.ca/epd/epdpa/mpp/pdfs/EIS_Guideline_Dec2000.pdf">http://www.env.gov.bc.ca/epd/epdpa/mpp/pdfs/EIS_Guideline_Dec2000.pdf</a> -Operations Plan guidelines: <a href="http://www.env.gov.bc.ca/epd/epdpa/mpp/guidance_3.htm">http://www.env.gov.bc.ca/epd/epdpa/mpp/guidance_3.htm</a> See websites for onsite sewage disposal regulation, requirements, how to file, and standard practices: <a href="http://www.health.gov.bc.ca/protect/lup_onsite.html">http://www.health.gov.bc.ca/protect/lup_onsite.html</a>
<b>Fisheries Act (BC)</b>	MOE	Various	<a href="http://www.env.gov.bc.ca/pasb/">http://www.env.gov.bc.ca/pasb/</a>
<b>Fish Protection Act</b>	MOE	Various	<a href="http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_97021_01">http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_97021_01</a> See this website for information on Permits associated with the <i>Fish Protection Act</i> : <a href="http://www.env.gov.bc.ca/habitat/fish_protection_act/">http://www.env.gov.bc.ca/habitat/fish_protection_act/</a>
<b>Forest Act</b>	FLNRO	Occupant Licence to Cut	Authority to cut and remove trees. Examples include: CEP site, access roads and power lines, widening of access road(s) for permanent access and/or the power lines. Please note that in many cases Timber Cruising cannot be done during winter months. See website for Cruising Manual and Interior Appraisal Manual: <a href="http://www.for.gov.bc.ca/hva/manuals.htm">http://www.for.gov.bc.ca/hva/manuals.htm</a> <i>Forest Act</i> Legislation links: <a href="http://www.for.gov.bc.ca/code/legislation.htm">http://www.for.gov.bc.ca/code/legislation.htm</a>
<b>Forest Practices Code (FPC) Act – Provincial Forest Use Regulation</b>	FLNRO	Special Use Permit	Authority to use a new or existing road to access CEP area. MFR Design Criteria for works that may impact Forest Roads or Timber Tenures: <a href="http://www.for.gov.bc.ca/hth/engineering/documents/publications_guidebooks/publications_reports/MOF-IPP-Design-Criteria_July7-05_.pdf">http://www.for.gov.bc.ca/hth/engineering/documents/publications_guidebooks/publications_reports/MOF-IPP-Design-Criteria_July7-05_.pdf</a> Legislation links: <a href="http://www.for.gov.bc.ca/code/legislation.htm">http://www.for.gov.bc.ca/code/legislation.htm</a> Uses of a Provincial Forest authorized by a SUIP outlined in s.7(1) of Provincial Forest Use Regulation: <a href="http://www.for.gov.bc.ca/tasb/legsregs/archive/fpc/fpcaregs/pforuse/pfur.htm#7">http://www.for.gov.bc.ca/tasb/legsregs/archive/fpc/fpcaregs/pforuse/pfur.htm#7</a> Road Safety Guidelines: <a href="http://www.for.gov.bc.ca/dss/contact/Forestry%20Road%20Safety.htm">http://www.for.gov.bc.ca/dss/contact/Forestry%20Road%20Safety.htm</a> Forest Use Regulation: <a href="http://www.for.gov.bc.ca/tasb/legsregs/archive/fpc/fpcaregs/pforuse/pfur.htm">http://www.for.gov.bc.ca/tasb/legsregs/archive/fpc/fpcaregs/pforuse/pfur.htm</a>
<b>Forest and Range Practices Act</b>	FLNRO	Various	Information on the designations under FRPA that could affect the Project, including Ungulate Winter Range Wildlife Habitat Areas, Old Growth Management Areas: <a href="http://www.for.gov.bc.ca/code/">http://www.for.gov.bc.ca/code/</a>
<b>Heritage Conservation Act</b>	FLNRO	s. 14 Inspection Permit	Authority to inspect a property for the presence of archaeological deposits, to assess potential impacts to archaeological deposits by a proposed development, to evaluate the significance of the site(s), and to provide enough information to formulate management recommendations for the site(s). Overview information, standards, guidelines, best practices, legislation, etc. can be found here: <a href="http://www.tca.gov.bc.ca/archaeology/archaeology_professionals/index.htm">http://www.tca.gov.bc.ca/archaeology/archaeology_professionals/index.htm</a>

Statute	Agency	Authorization	Purpose
			Site Alteration Permit Application Guide: <a href="http://www.tca.gov.bc.ca/archaeology/archaeology_professionals/permits.htm">http://www.tca.gov.bc.ca/archaeology/archaeology_professionals/permits.htm</a>
<b>Heritage Conservation Act</b>	FLNRO	s. 14 Investigative Permit	Authority to mitigate impacts to sites through the recovery of data after an impact assessment has been completed under an inspection permit, and when a site has been determined to be too significant to go straight to an alteration permit [even with a provision for monitoring during construction]. Investigation permits are part of the HCA's practice of "preservation through record," which is designed to collect enough information from an archaeological deposit to mitigate the damage caused by a proposed development. <a href="http://www.tca.gov.bc.ca/archaeology/archaeology_professionals/permits.htm">http://www.tca.gov.bc.ca/archaeology/archaeology_professionals/permits.htm</a> - Details on recording and submitting information found here: <a href="http://www.tca.gov.bc.ca/archaeology/bulletins/bulletin23_Recording_Archaeological_Study_Areas.htm">http://www.tca.gov.bc.ca/archaeology/bulletins/bulletin23_Recording_Archaeological_Study_Areas.htm</a>
<b>Heritage Conservation Act</b>	FLNRO	s. 12 Site Alteration Permit	Authority to alter or destroy the site in accordance with the terms and conditions of the permit. Issued in the name of the developer, who is responsible for fulfilling the conditions of the permit. Requires that site alteration permits not be issued concurrently with investigation or inspection permits, but that First Nations or other interested parties, be given the opportunity to have their views considered prior to making a decision on whether to issue a permit. <a href="http://www.env.gov.bc.ca/wsd/water_rights/licence_application/index.html">http://www.env.gov.bc.ca/wsd/water_rights/licence_application/index.html</a> <a href="http://www.env.gov.bc.ca/wsd/water_rights/licence_application/section9/index.html">http://www.env.gov.bc.ca/wsd/water_rights/licence_application/section9/index.html</a>
<b>Integrated Pest Management Act and Regulation</b>	FLNRO	Licences/ permits to use pesticides	<i>Integrated Pest Management Act:</i> <a href="http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_03058_01">http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_03058_01</a> IPM Regulation: <a href="http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_604_2004">http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_604_2004</a> General information on pesticide legislation: <a href="http://www.env.gov.bc.ca/epd/ipmp/regs/index.htm">http://www.env.gov.bc.ca/epd/ipmp/regs/index.htm</a> Applicable forms: <a href="http://www.env.gov.bc.ca/epd/ipmp/forms/index.htm">http://www.env.gov.bc.ca/epd/ipmp/forms/index.htm</a>
<b>Land Act</b>	FLNRO	Investigative Licence	Issued to any Proponent requiring access to the land for appraisals, inspections, analyses, inventories, surveys or other investigations of Crown land or its natural resources, or where otherwise required. See application package here: <a href="http://www.ilmb.gov.bc.ca/apps/oneWindow.php">http://www.ilmb.gov.bc.ca/apps/oneWindow.php</a> (Browse Permits and Licenses for "Land Use")
<b>Land Act</b>	FLNRO	Licence of Occupation	Authorization for power line rights of way, quarries, camps and staging areas. ***NOTE: Only investigative and temporary permits, and licences of occupation are used for projects in the early stages of CEP development. Licences may be converted to long term tenure, as appropriate, when a Project is approved by government. See CE policies for water power, wind power and ocean energy: <a href="http://www.al.gov.bc.ca/clad/land_prog_services/policies.html">http://www.al.gov.bc.ca/clad/land_prog_services/policies.html</a>

Statute	Agency	Authorization	Purpose
<b>Public Health Act – Food Premises Regulation, and DWP Act</b>	LHA	Food Premises Permit	Prior to opening a food premise, approval must be obtained from the Environmental Health Officer (EHO). In order to obtain approval, plans and specifications of the premise must be approved by the EHO and approval is granted upon the application meeting the requirements of the <i>Food Premise Regulations (Public Health Act)</i> . The BC Centre for Disease control has guidelines on food safety: <a href="http://www.bccdc.ca/NR/rdonlyres/29845061-1E80-4768-B278-A245E70368BE/0/FoodProtectionVitaltoBusiness_Mar2010.pdf">http://www.bccdc.ca/NR/rdonlyres/29845061-1E80-4768-B278-A245E70368BE/0/FoodProtectionVitaltoBusiness_Mar2010.pdf</a>
<b>Public Health Act – Sewage Disposal Regulation</b>	LHA	Filing of Certification Letter	A certification letter needs to be filed with the applicable Local Health Authority by an ‘Authorized Person’ for <22,700 L/day of sewage. If >22,700 L/day, then <i>Municipal Sewage Regulation</i> under the <i>Environmental Management Act</i> applies. <a href="http://www.health.gov.bc.ca/protect/lup_onsite.html">http://www.health.gov.bc.ca/protect/lup_onsite.html</a>
<b>Transportation Act, Motor Vehicles Act</b>	MOTI	Access Permit	Please note, if the CEP roads are to be maintained by MoTI then the roads are to be constructed to MoTI minimum standards (Chapter 1400 of the BC Supplement to TAC Manual) with an Engineer of Record designing and signing off at the 4 stages of construction. Access to roads maintained by MoTI must be a minimum standard based on the number of vehicles and type of vehicles. Authority to construct proposed routes that originate off MOTI roads: <a href="http://www.th.gov.bc.ca/permits/H0020.pdf">http://www.th.gov.bc.ca/permits/H0020.pdf</a> BC Supplement to TAC: Geometric Design Guide, 2007 Edition: <a href="http://www.th.gov.bc.ca/publications/eng_publications/geomet/TAC/TAC_2007_Supplement/2007BC_Supplement_to_TAC_Rev1.pdf">http://www.th.gov.bc.ca/publications/eng_publications/geomet/TAC/TAC_2007_Supplement/2007BC_Supplement_to_TAC_Rev1.pdf</a> See Highway Permits and Approvals website, including ‘manuals’: <a href="http://www.th.gov.bc.ca/permits/index.asp">http://www.th.gov.bc.ca/permits/index.asp</a>
	MOTI	Crossing Permit	Authority for circumstances wherein power line crosses over MOTI right-of-way or infrastructure (may be able to tie into Utility Permit).
	MOTI	Utility Permit	Authority to construct power line (up to 69kV) as well as access points to build and maintain it within MOTI highway right-of-way.
<b>Water Act, Water Protection Act</b>	FLNRO	Water Licence	Authority to store, use and/or divert surface water including installation of works. May or may not be required for capturing and recycling water for industrial use. <a href="http://www.env.gov.bc.ca/wsd/water_rights/licence_application/section9/index.html">http://www.env.gov.bc.ca/wsd/water_rights/licence_application/section9/index.html</a> <a href="http://www.ilmb.gov.bc.ca/apps/oneWindow.php?authType=water">http://www.ilmb.gov.bc.ca/apps/oneWindow.php?authType=water</a> ( Browse Permits and Licenses for “Water” to see a complete list)
<b>Water Act, Water Regulation</b>	FLNRO	Approval or Notification of “changes in or about a stream” (Section 9 permit)	An Approval is a written authorization for changes in and about a stream of a complex nature. Notifications are used for works that do not involve any diversion of water, may be completed within a short period of time, and will have minimal impact on the environment or third parties. <a href="http://www.env.gov.bc.ca/wsd/water_rights/licence_application/section9/application_sec9_june2010_revised.pdf">http://www.env.gov.bc.ca/wsd/water_rights/licence_application/section9/application_sec9_june2010_revised.pdf</a>

Statute	Agency	Authorization	Purpose
<i>Water Act - Dam Safety Regulation</i>	FLNRO	BC Reg 44/2000	Regulation: <a href="http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_44_2000">http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_44_2000</a> Plan Submission Guidelines (2009): <a href="http://www.env.gov.bc.ca/wsd/public_safety/dam_safety/cabinet/dam_safety_guidelines_v8.1.pdf">http://www.env.gov.bc.ca/wsd/public_safety/dam_safety/cabinet/dam_safety_guidelines_v8.1.pdf</a> General Information: <a href="http://www.env.gov.bc.ca/wsd/public_safety/dam_safety/responsible.html">http://www.env.gov.bc.ca/wsd/public_safety/dam_safety/responsible.html</a>
<i>Wildfire Act</i>	FLNRO	Burning Permit	Any burning requires a burning reference number. To obtain one call 1-888-797-1717 <a href="http://bcwildfire.ca/LegReg/">http://bcwildfire.ca/LegReg/</a> <a href="http://bcwildfire.ca/FAQ/">http://bcwildfire.ca/FAQ/</a>
<i>Wildlife Act</i>	FLNRO	Permit pursuant to Wildlife Act for use of lands w/in a WMA	Authority to undertake any activity within a Wildlife Management Area is required prior to disturbance. Wildlife Act (BC Reg. 63/2001 O.C.304/2001) <a href="http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96488_01">http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96488_01</a>
		Fish Collection Permit	Fish collection permits <a href="http://www.env.gov.bc.ca/pasb/applications/process/scientific_fish_collect.html">http://www.env.gov.bc.ca/pasb/applications/process/scientific_fish_collect.html</a> Wild life Sundry Permits <a href="http://www.env.gov.bc.ca/pasb/applications/process/wildlife.html">http://www.env.gov.bc.ca/pasb/applications/process/wildlife.html</a>

## APPENDIX 2: PRIVATE/FEDERAL LAND REQUIREMENTS

If the Project is located wholly on private or federally controlled land but still requires multiple Provincial authorizations, please provide the following details:

- a) For federally controlled land, provide a list of the federal authorizations that need to be considered for the Project, and a contact list of federal employees who are engaged in the Project;
- b) A list of Provincial approvals needed to complete the Project;
- c) Complete list (names, contact information, legal description) for all **private properties directly affected** by the Project (i.e. properties that will contain any works, transmission lines, pipelines, crossings or development associated with the Project);
- d) Description of the **arrangements with private landowners** to use the land for the Project, or components of the Project (signed letters of authorization from landowners, registered easements, rights of way, etc). Please indicate whether the authorization to use private land expires upon change of ownership.
- e) Discuss whether any **expropriation of private land** is required for the Project. If expropriation is proposed/ required, discuss the steps that will be taken to complete expropriations, including public consultation, landowner compensation, etc.
- f) Copies of the correspondence issued to all property owners notifying them of the proposed Project and providing opportunities for their input. Please note that “affected property owners” include any private land owner whose property is physically impacted by the proposed water licence.
- g) Known **water users downstream** with consideration to effects on their water usage, interruption, compensation and notification.
- h) Discussion of the Project’s potential implications with respect to **riparian rights** for any land owners. Examples of impacts to riparian rights include: alteration of flows, erosion or accretion impacts.
- i) Discussion of the Project’s potential implications with respect to **existing water rights**. This includes discussion about how other existing water licencees may be affected by the proposed Project. For example, access to water during time of shortage.
- j) Confirmation the Project meets the Official Community Plan land use designation and zoning bylaw regulations of the applicable local government. Discuss the zoning requirements with respect to minimum setbacks to property lines; maximum structure height; maximum parcel coverage; riparian area regulations and setbacks to watercourses.
- k) Discuss whether the Project requires approvals from the local government and list the status of any applications associated with the Project (e.g. building permits, zoning amendments, Development Permits, etc

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### APPENDIX 3: SAMPLE MATRIX OF PROJECT ACTIVITIES AND VCS

PROJECT PHASE	Valued Component																		
	Atmospheric Environment	Socio-Economic			Forest and Range			Terrestrial Environment		Geophysical Environment			Aquatic Environment						
	Air quality	Sites of archaeological significance	Navigation, Transport, and Access	Human health and Safety	Forest Health	Invasive Plants	Forest Resource Features	Range and Forage	Wildlife and Wildlife Habitat	Rare Plants, Plant communities Ecosystems at Risk	Physical Geography and Topography	Surface Hydrology and Hydrogeology	Geotechnical / slope stability	Geomorphology	Aquatic Habitat	Aquatic Vegetation	Water Quality	Aquatic Fauna – Fish and Fish Habitat	Aquatic Fauna – Other Aquatic Species
<b>CONSTRUCTION</b>																			
Activity 1 (eg : Excavation)																			
Activity 2 (eg: Blasting)																			
<b>OPERATION</b>																			
Activity 1 (eg : Flow Diversion)																			
Activity 2 (eg: Ramping)																			
<b>DECOMMISSIONING</b>																			
Activity 1 (eg: road decommissions)																			
Activity 2 (eg: Excavation)																			

Shade boxes where potential interaction exists with a magnitude that warrants inclusion in the EA / SEA

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## APPENDIX 4: RESIDUAL IMPACT ASSESSMENT TABLE TEMPLATE

Valued Component	Project Activity/ Interaction	What mitigation measures are required?	Would the effect be significant with the application of identified mitigation?						Significance of Residual Effects	Level of Confidence
			Geographic extent	Duration & Frequency	Magnitude	Probability	Reversibility	Context		

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## **APPENDIX 5: REGION-SPECIFIC REQUIREMENTS**

Specific Requirements for special studies in the Regions

Placeholder for map(s) / table(s) here that indicate special requirements for certain parts of the Province. For example, a map can indicate areas where specific Mountain Caribou studies are required and direct Proponents to focus on certain regionally significant wildlife.

As results of specific pilots or studies become available this attachment can be populated or updated



# ATTACHMENT 1: INSTRUCTIONS TO DESCRIBE UNSURVEYED CROWN LAND

1. The point of commencement, for unsurveyed parcels, should be described in terms of an existing survey post.
  - e.g. 18 metres west of the S.E. corner of the parcel) or a readily identifiable geographic feature (e.g., a prominent point of land or intersection of two roads) to enable accurate location of the parcel.
2. Boundary lines of the area must be, as much as possible, astronomically true north, south, east and west so that a rectangular lot is formed.
3. Where the topographic features of the area do not allow for rectangular boundary lines running true north, south, east and west, then boundaries will be permitted in other directions as long as they do not interfere with the orderly survey of other surrounding land.
4. The side lines of small parcels fronting on lakes, rivers, tidal waters and on certain surveyed highways shall, where possible, be parallel to each other and perpendicular to the general trend of the features on which the small parcel fronts.
5. The sidelines for unsurveyed foreshore shall, as a general rule, be laid out at right angles to the general trend of the shore. This may be varied to suit special conditions, but encroachment on the foreshore fronting adjoining lands shall be avoided. The outside or waterward boundary shall be a straight line or series of straight lines joining the outer ends of the side boundaries. On narrow bodies of water the outside boundary shall not normally extend beyond the near edge of the navigable channel.
6. 1 hectare = 2.471 acres  
1 metre = 3.281 feet  
100 metres x 100 metres = 10,000 square metres or 1 hectare

## ATTACHMENT 2: LINKS TO IMPORTANT DOCUMENTS

Below are hotlinks for all websites, guidelines, and studies referenced in the Development Plan Information Requirements.

*Please note: some statutes are listed here for reference when preparing specific sections of the Development Plan. Proponents are advised to review the statute listing in [Appendix 1](#) for more details on application processes.*

<b>1 PROJECT SUMMARY</b>	
BC Environmental Assessment Office – Reviewable Projects Legislation	<a href="http://www.eao.gov.bc.ca/">http://www.eao.gov.bc.ca/</a>
BC Environmental Assessment office – Application Information Requirements Template	<a href="http://www.eao.gov.bc.ca/pdf/AIR_Template_oct2010.pdf">http://www.eao.gov.bc.ca/pdf/AIR_Template_oct2010.pdf</a>
BC Environmental Assessment office – User Guide	<a href="http://www.eao.gov.bc.ca/pdf/EAO_User_Guide%20Final-april2010CI.pdf">http://www.eao.gov.bc.ca/pdf/EAO_User_Guide%20Final-april2010CI.pdf</a>
Government of Canada – Major Projects Management Office: Guide to Preparing a Project Description for a Major Resource Project	<a href="http://www.mpmo-bggp.gc.ca/desc/guide-eng.php">http://www.mpmo-bggp.gc.ca/desc/guide-eng.php</a>
Canadian Environmental Assessment Agency Homepage	<a href="http://www.ceaa.gc.ca">http://www.ceaa.gc.ca</a>
<b>4</b>	
<b>ENVIRONMENTAL ASSESSMENT</b>	
Environmental Mitigation and Offsetting Policy for British Columbia	<a href="http://www.env.gov.bc.ca/emop/">http://www.env.gov.bc.ca/emop/</a>
Guidelines and Best Management Practices	<a href="http://www.env.gov.bc.ca/wld/BMP/bmpintro.html#first">http://www.env.gov.bc.ca/wld/BMP/bmpintro.html#first</a>
MFLNRO Permit and Authorization Service Bureau: Fish Collection	<a href="http://www.env.gov.bc.ca/pasb/applications/process/scientific_fish_collect.html">http://www.env.gov.bc.ca/pasb/applications/process/scientific_fish_collect.html</a>
MFLNRO Permit and Authorization Service Bureau: Wildlife Sundry Permits	<a href="http://www.env.gov.bc.ca/pasb/applications/process/wildlife.html">http://www.env.gov.bc.ca/pasb/applications/process/wildlife.html</a>
Resources Information Standards Committee	<a href="http://www.ilmb.gov.bc.ca/risc/">http://www.ilmb.gov.bc.ca/risc/</a>
Water Applicant’s Agency Resource Guide.	<a href="http://www.env.gov.bc.ca/wsd/water_rights/licence_application/cabinet/agency_resource.pdf">http://www.env.gov.bc.ca/wsd/water_rights/licence_application/cabinet/agency_resource.pdf</a>
<b>4.1 Aquatic Environment</b>	
Standards and Best Practices for Instream Works	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf</a>
DFO (2010) Working Near Water in BC and the Yukon	<a href="http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm">http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm</a>

Hatfield, A. A. Lewis & S. Babakaiff (2007). Guidelines for the collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower projects in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf</a>
Lewis, A., T. Hatfield, B. Chillibeck & C. Roberts (2004) Assessment methods for aquatic habitat and instream flow characteristics in support of applications to dam, divert, or extract water from streams in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/assessment_methods_instreamflow_in_bc.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/assessment_methods_instreamflow_in_bc.pdf</a>
Field Supplement to Evaluating the Condition of Streams and Riparian Management Areas (Field Guide) - 2009	<a href="http://www.for.gov.bc.ca/ftp/hfp/external/!publish/frep/indicators/Indicators-Riparian-FieldGuide-March-2009-v2.pdf">http://www.for.gov.bc.ca/ftp/hfp/external/!publish/frep/indicators/Indicators-Riparian-FieldGuide-March-2009-v2.pdf</a>
<b>4.1.1 Aquatic Habitat</b>	
DFO (2010) Working Near Water in BC and the Yukon	<a href="http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm">http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm</a>
<b>4.1.2.1 Fish and Fish Habitat</b>	
<i>Fisheries Act</i>	<a href="http://laws.justice.gc.ca/PDF/Statute/F/F-14.pdf">http://laws.justice.gc.ca/PDF/Statute/F/F-14.pdf</a>
<i>Fish Protection Act</i>	<a href="http://www.env.gov.bc.ca/habitat/fish_protection_act/act/documents/act-theact.html">http://www.env.gov.bc.ca/habitat/fish_protection_act/act/documents/act-theact.html</a>
Resource Information Standards Committee (RISC). Aquatic Ecosystems.	<a href="http://www.ilmb.gov.bc.ca/risc/pubs/aquatic/index.htm">http://www.ilmb.gov.bc.ca/risc/pubs/aquatic/index.htm</a>
RISC (April 2001) Standards for Fish & Fish Habitat Maps V3.0	<a href="http://archive.ilmb.gov.bc.ca/risc/pubs/aquatic/fishmaps2k1/fishmaps_april2001.pdf">http://archive.ilmb.gov.bc.ca/risc/pubs/aquatic/fishmaps2k1/fishmaps_april2001.pdf</a>
<b>4.1.2.2 Other Aquatic Species</b>	
Provincial Conservation Framework	<a href="http://www.env.gov.bc.ca/conservationframework/index.html">http://www.env.gov.bc.ca/conservationframework/index.html</a>
Species At Risk Registry	<a href="http://www.sararegistry.gc.ca/default_e.cfm">http://www.sararegistry.gc.ca/default_e.cfm</a>
<b>4.1.3 Aquatic Vegetation</b>	
Provincial Conservation Framework	<a href="http://www.env.gov.bc.ca/conservationframework/index.html">http://www.env.gov.bc.ca/conservationframework/index.html</a>
Species At Risk Registry	<a href="http://www.sararegistry.gc.ca/default_e.cfm">http://www.sararegistry.gc.ca/default_e.cfm</a>
<b>4.1.4 Water Quality</b>	
Hatfield, A. A. Lewis & S. Babakaiff (2007). Guidelines for the collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower projects in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf</a>

Lewis, A., T. Hatfield, B. Chillibeck & C. Roberts (2004) Assessment methods for aquatic habitat and instream flow characteristics in support of applications to dam, divert, or extract water from streams in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/assessment_methods_instreamflow_in_bc.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/assessment_methods_instreamflow_in_bc.pdf</a>
Ministry of Environment. Water Quality Procedure Guides and Sampling Manuals	<a href="http://www.env.gov.bc.ca/wat/wq/wq_procedure.html">http://www.env.gov.bc.ca/wat/wq/wq_procedure.html</a>
Ministry of Environment (MOE). Environmental Monitoring System (EMS) Web Reporting	<a href="http://www.env.gov.bc.ca/emswr/">http://www.env.gov.bc.ca/emswr/</a>
Ministry of Environment (MOE). Water Inventory Data Management System (WIDM)	<a href="http://www.env.gov.bc.ca/wsd/data_searches/widm/index.html">http://www.env.gov.bc.ca/wsd/data_searches/widm/index.html</a>
RISC. 1997. Ambient Freshwater and Effluent Sampling Manual. Prepared by the Resource Inventory Standards Committee.	<a href="http://www.ilmb.gov.bc.ca/risc/pubs/aquatic/ambient/index.htm">http://www.ilmb.gov.bc.ca/risc/pubs/aquatic/ambient/index.htm</a>
RISC. 1998. Guidelines for Designing and Implementing a Water Quality Monitoring Program in British Columbia	<a href="http://archive.ilmb.gov.bc.ca/risc/pubs/aquatic/design/index.htm">http://archive.ilmb.gov.bc.ca/risc/pubs/aquatic/design/index.htm</a>
Provincial Guidelines for Water Quality	<a href="http://www.env.gov.bc.ca/wat/wq/wq_procedure.html#ric">http://www.env.gov.bc.ca/wat/wq/wq_procedure.html#ric</a>
Water Quality Guidelines (Criteria) Report	<a href="http://www.env.gov.bc.ca/wat/wq/wq_guidelines.html">http://www.env.gov.bc.ca/wat/wq/wq_guidelines.html</a>
<b>4.2 Atmospheric Environment</b>	
BC Meteorological Monitoring	<a href="http://www.bcairquality.ca/assessment/meteorological-monitoring.html">http://www.bcairquality.ca/assessment/meteorological-monitoring.html</a>
BC Air Quality BMP	<a href="http://www.bcairquality.ca/reports/topic_Practices.html">http://www.bcairquality.ca/reports/topic_Practices.html</a>
Air Quality Managements Plans in BC	<a href="http://www.bcairquality.ca/plans/air-quality-plans.html">http://www.bcairquality.ca/plans/air-quality-plans.html</a>
BC Air Quality Objectives and Standards	<a href="http://www.bcairquality.ca/regulatory/air-objectives-standards.html">http://www.bcairquality.ca/regulatory/air-objectives-standards.html</a>
Criteria Air Contaminants and Related Pollutants	<a href="http://www.ec.gc.ca/air/default.asp?lang=En&amp;n=7C43740B-1">http://www.ec.gc.ca/air/default.asp?lang=En&amp;n=7C43740B-1</a>
RISC Atmosphere and Air Quality Ecosystems Standards.	<a href="http://archive.ilmb.gov.bc.ca/risc/pubs/atmos/index.htm">http://archive.ilmb.gov.bc.ca/risc/pubs/atmos/index.htm</a>
<b>4.3 Geophysical Environment</b>	
Hatfield, A. A. Lewis & S. Babakaiff (2007). Guidelines for the collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower projects in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf</a>

Lewis, A., T. Hatfield, B. Chillibeck & C. Roberts (2004) Assessment methods for aquatic habitat and instream flow characteristics in support of applications to dam, divert, or extract water from streams in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/assessment_methods_instreamflow_in_bc.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/assessment_methods_instreamflow_in_bc.pdf</a>
<b>4.3.1 Surface Hydrology and Hydrogeology</b>	
BC Dam Safety Regulations	<a href="http://www.env.gov.bc.ca/wsd/public_safety/dam_safety/">http://www.env.gov.bc.ca/wsd/public_safety/dam_safety/</a>
Hatfield, A. A. Lewis & S. Babakaiff (2007). Guidelines for the collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower projects in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesFRv5_2.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesFRv5_2.pdf</a>
Lewis, A., T. Hatfield, B. Chillibeck & C. Roberts (2004) Assessment methods for aquatic habitat and instream flow characteristics in support of applications to dam, divert, or extract water from streams in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/assessment_methods_instreamflow_in_bc.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/assessment_methods_instreamflow_in_bc.pdf</a>
Land and Water British Columbia Inc. (LWBC). 2005. Hydrological Guidelines for Waterpower Projects (July 2005)	<a href="http://www.env.gov.bc.ca/lower-mainland/electronic_documents/LWBC%20Hydro%20guidelines%20%28July%202005%29.pdf">http://www.env.gov.bc.ca/lower-mainland/electronic_documents/LWBC%20Hydro%20guidelines%20%28July%202005%29.pdf</a>
RISC. 2009. Manual of British Columbia Hydrometric Standards	<a href="http://www.ilmb.gov.bc.ca/risc/pubs/aquatic/hydrometric/man_BC_hydrometric_stand_V1.0.pdf">http://www.ilmb.gov.bc.ca/risc/pubs/aquatic/hydrometric/man_BC_hydrometric_stand_V1.0.pdf</a>
Ministry of Environment. Historic Snow Survey Data: Station Selection.	<a href="http://a100.gov.bc.ca/pub/mss/stationlist.do">http://a100.gov.bc.ca/pub/mss/stationlist.do</a>
MFLNRO. River Forecast Centre. Automated Snow Pillow data Archive.	<a href="http://bcrfc.env.gov.bc.ca/data/asp/archive.htm">http://bcrfc.env.gov.bc.ca/data/asp/archive.htm</a>
Pacific Climate Impacts Consortium: Regional Analysis Tool	<a href="http://pacificclimate.org/tools-and-data/regional-analysis-tool">http://pacificclimate.org/tools-and-data/regional-analysis-tool</a>
<b>4.3.3 Geomorphology</b>	
Hatfield, A. A. Lewis & S. Babakaiff (2007). Guidelines for the collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower projects in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesFRv5_2.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesFRv5_2.pdf</a>
Lewis, A., T. Hatfield, B. Chillibeck & C. Roberts (2004) Assessment methods for aquatic habitat and instream flow characteristics in support of applications to dam, divert, or extract water from streams in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/assessment_methods_instreamflow_in_bc.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/assessment_methods_instreamflow_in_bc.pdf</a>
Channel Assessment Procedure Field Guidebook	<a href="http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/CHANFLD/cfld-toc.htm">http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/CHANFLD/cfld-toc.htm</a>

Channel Condition Assessment Procedure	<a href="http://www.env.gov.bc.ca/wld/documents/wrp/wrtc_7.pdf">http://www.env.gov.bc.ca/wld/documents/wrp/wrtc_7.pdf</a>
<b>4.3.4</b>	
Geology and Geochemistry	
Guidelines for metal leaching and acid rock drainage at mine sites in british columbia	<a href="http://www.empr.gov.bc.ca/Mining/Permitting-Reclamation/ML-ARD/Pages/Guidelines.aspx">http://www.empr.gov.bc.ca/Mining/Permitting-Reclamation/ML-ARD/Pages/Guidelines.aspx</a>
Geological Survey of Canada (GSC)	<a href="http://gsc.nrcan.gc.ca/index_e.php">http://gsc.nrcan.gc.ca/index_e.php</a>
British Columbia Geological Survey (BCGS)	<a href="http://www.empr.gov.bc.ca/MINING/GEOSCIENCE/Pages/default.aspx">http://www.empr.gov.bc.ca/MINING/GEOSCIENCE/Pages/default.aspx</a>
BCGS Terrain and Soils Map	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/TerrainandSoilMaps/Pages/default.aspx">http://www.empr.gov.bc.ca/Mining/Geoscience/TerrainandSoilMaps/Pages/default.aspx</a>
Assessment Report Indexing system (ARIS)	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/ARIS/Pages/default.aspx">http://www.empr.gov.bc.ca/Mining/Geoscience/ARIS/Pages/default.aspx</a>
Ministry of Energy and Mines - MINFILE Mineral Inventory	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/MINFILE/Pages/default.aspx">http://www.empr.gov.bc.ca/Mining/Geoscience/MINFILE/Pages/default.aspx</a>
BCGS Surficial Geology and Hazards (regional structural studies)	<a href="http://www.empr.gov.bc.ca/Mining/Geoscience/SurficialGeologyandHazards/Pages/default.aspx">http://www.empr.gov.bc.ca/Mining/Geoscience/SurficialGeologyandHazards/Pages/default.aspx</a>
<b>4.4 Terrestrial Environment</b>	
Wilson, S. and Hubert. 2010. A framework for Assessing Ecosystems Values in Development Proposals. Draft. Prepared for BC Ministry of Environment. Victoria, BC	
<b>4.4.1 Wildlife and Wildlife Habitat</b>	
Boyce, M.S., P.R. Vernier, S.E. Nielsen, and FKA Schmiegelow. 2002. Evaluating resource selection functions. Ecological Modelling 157: 281-300.	<a href="http://www.who.edu/cms/files/Ecological_Modelling_2002_Boyce_53558.pdf">http://www.who.edu/cms/files/Ecological_Modelling_2002_Boyce_53558.pdf</a>
BC Conservation Data Centre	<a href="http://www.env.gov.bc.ca/cdc/">http://www.env.gov.bc.ca/cdc/</a>
Environment Canada. (2007a). Recommended Protocols for Monitoring Impacts to Wind Turbines on Birds.	<a href="http://www.ec.gc.ca/Publications/default.asp?lang=En&amp;xml=C8CE090E-9F69-4080-8D47-0622E115A4FF">http://www.ec.gc.ca/Publications/default.asp?lang=En&amp;xml=C8CE090E-9F69-4080-8D47-0622E115A4FF</a>
Environment Canada. (2007b). Wind Turbines and Birds: A Guidance Document for Environmental Assessment.	<a href="http://www.ec.gc.ca/Publications/default.asp?lang=En&amp;xml=9B1BDC4A-E66F-4EAD-B5A9-20475F7DB29B">http://www.ec.gc.ca/Publications/default.asp?lang=En&amp;xml=9B1BDC4A-E66F-4EAD-B5A9-20475F7DB29B</a>
Hatfield, A. A. Lewis & S. Babakaiff (2007). Guidelines for the collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower projects in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf</a>
Federal Recovery strategies and Action Plans	<a href="http://www.sararegistry.gc.ca/sar/recovery/recovery_e.cfm">http://www.sararegistry.gc.ca/sar/recovery/recovery_e.cfm</a>
Forest and Range Practices Act	<a href="http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_02069_01">http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_02069_01</a>
Guidelines and Best Management Practices (BMPs)	<a href="http://www.env.gov.bc.ca/wld/BMP/bmpintro.html#first">http://www.env.gov.bc.ca/wld/BMP/bmpintro.html#first</a>

Identified Wildlife Management Strategy (IWMS)	<a href="http://www.env.gov.bc.ca/wld/frpa/iwms/">http://www.env.gov.bc.ca/wld/frpa/iwms/</a>
Land Use and Management Plans	<a href="http://www.ilmb.gov.bc.ca/category/products-and-services/plans">http://www.ilmb.gov.bc.ca/category/products-and-services/plans</a>
Migratory Birds Convention Act	<a href="http://laws.justice.gc.ca/en/M-7.01/index.html">http://laws.justice.gc.ca/en/M-7.01/index.html</a>
Provincial Conservation Framework	<a href="http://www.env.gov.bc.ca/conservationframework/index.html">http://www.env.gov.bc.ca/conservationframework/index.html</a>
Provincial Recovery strategies and Action Plans	<a href="http://www.env.gov.bc.ca/wld/recoveryplans/recovery_doc_table.html">http://www.env.gov.bc.ca/wld/recoveryplans/recovery_doc_table.html</a>
Species at Risk Act (SARA)	<a href="http://www.sararegistry.gc.ca/approach/act/default_e.cfm">http://www.sararegistry.gc.ca/approach/act/default_e.cfm</a>
Species At Risk Registry	<a href="http://www.sararegistry.gc.ca/default_e.cfm">http://www.sararegistry.gc.ca/default_e.cfm</a>
Species Inventory Database (SPI)	<a href="http://www.env.gov.bc.ca/wildlife/wsi/spidatasystem.htm">http://www.env.gov.bc.ca/wildlife/wsi/spidatasystem.htm</a>
Vennesland, R. and K. Welstead (2009). Guidelines for Dealing with Development Effects on Species and Ecosystems at Risk on the South Coast of British Columbia	<a href="http://www.env.gov.bc.ca/lower-mainland/ecosystems/species_at_risk/assessment_management.htm">http://www.env.gov.bc.ca/lower-mainland/ecosystems/species_at_risk/assessment_management.htm</a>
Wildlife Act	<a href="http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96488_01">http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96488_01</a>
Wildlife Habitat Features	<a href="http://www.env.gov.bc.ca/wld/frpa/habitatfeatures.html">http://www.env.gov.bc.ca/wld/frpa/habitatfeatures.html</a>
Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds	<a href="http://www.ec.gc.ca/Publications/default.asp?lang=En&amp;xml=C8CE090E-9F69-4080-8D47-0622E115A4FF">http://www.ec.gc.ca/Publications/default.asp?lang=En&amp;xml=C8CE090E-9F69-4080-8D47-0622E115A4FF</a>
Bats and Wind Turbines. Pre-siting and pre-construction survey protocols (2006)	<a href="http://www.wbwg.org/conservation/papers/TurbineProtocol15May06R.pdf">http://www.wbwg.org/conservation/papers/TurbineProtocol15May06R.pdf</a>
<b>4.4.2 Rare Plants, Plant Communities and Ecosystems at Risk VCs</b>	
BC Conservation Data Centre	<a href="http://www.env.gov.bc.ca/cdc/">http://www.env.gov.bc.ca/cdc/</a>
E-Flora BC. Protocols for Rare Vascular Plant Surveys.	<a href="http://www.geog.ubc.ca/biodiversity/eflora/ProtocolsforRarePlantSurveys.html">http://www.geog.ubc.ca/biodiversity/eflora/ProtocolsforRarePlantSurveys.html</a>
Federal Policy on Wetland Conservation	<a href="http://dsp-psd.pwgsc.gc.ca/Collection/CW66-116-1991E.pdf">http://dsp-psd.pwgsc.gc.ca/Collection/CW66-116-1991E.pdf</a>
GeoBC	<a href="http://geobc.gov.bc.ca/">http://geobc.gov.bc.ca/</a>
Land Use and Management Plans	<a href="http://www.ilmb.gov.bc.ca/category/products-and-services/plans">http://www.ilmb.gov.bc.ca/category/products-and-services/plans</a>

Mackenzie and Moran (2004). Wetlands of British Columbia: A guide to identification.	<a href="http://www.for.gov.bc.ca/hfd/pubs/docs/lmh/lmh52.htm">http://www.for.gov.bc.ca/hfd/pubs/docs/lmh/lmh52.htm</a>
Predictive Ecosystem Mapping	<a href="http://www.env.gov.bc.ca/ecology/tem/manuals.html">http://www.env.gov.bc.ca/ecology/tem/manuals.html</a>
Provincial Conservation Framework	<a href="http://www.env.gov.bc.ca/conservationframework/index.html">http://www.env.gov.bc.ca/conservationframework/index.html</a>
Sensitive Ecosystems Inventory (SEI)	<a href="http://www.env.gov.bc.ca/sei">http://www.env.gov.bc.ca/sei</a>
<i>Species at Risk Act</i> (SARA)	<a href="http://www.sararegistry.gc.ca/approach/act/default_e.cfm">http://www.sararegistry.gc.ca/approach/act/default_e.cfm</a>
Species Inventory Database (SPI)	<a href="http://www.env.gov.bc.ca/wildlife/wsi/spidatasystem.htm">http://www.env.gov.bc.ca/wildlife/wsi/spidatasystem.htm</a>
Terrestrial Ecosystem Mapping	<a href="http://www.env.gov.bc.ca/ecology/tem/manuals.html">http://www.env.gov.bc.ca/ecology/tem/manuals.html</a>
Vennesland, R and K. Welstead (2009) - Step 1 Guidelines for Dealing with Development Effects on Species and Ecosystems at Risk on the South Coast of British Columbia	<a href="http://www.env.gov.bc.ca/lower-mainland/ecosystems/species_at_risk/assessment_management.htm">http://www.env.gov.bc.ca/lower-mainland/ecosystems/species_at_risk/assessment_management.htm</a>
<b>4.4.3 Forest and Range Considerations</b>	
FRPA General Bulletin #16 Application of FRPA to Independent Power Producers, Mineral Interests and Other Occupiers of Land	<a href="http://www.for.gov.bc.ca/hth/timten/FRPA_implementation/Bulletins.htm">http://www.for.gov.bc.ca/hth/timten/FRPA_implementation/Bulletins.htm</a>
Karst Inventory Standards and Vulnerability Assessment Procedures for British Columbia (RISC 2003)	<a href="http://www.ilmb.gov.bc.ca/risc/pubs/earthsci/karst_v2/karst_risc.pdf">http://www.ilmb.gov.bc.ca/risc/pubs/earthsci/karst_v2/karst_risc.pdf</a>
Karst Management Handbook for British Columbia (BC Ministry of Forests, 2003)	<a href="http://www.for.gov.bc.ca/hfp/publications/00189/Karst-Mgmt-Handbook-web.pdf">http://www.for.gov.bc.ca/hfp/publications/00189/Karst-Mgmt-Handbook-web.pdf</a>
<b>5.1 Regional Economy</b>	
Municipalities' websites and staff contact information	<a href="http://www.ubcm.ca/EN/main/about/ubcm-members/municipalities.html">http://www.ubcm.ca/EN/main/about/ubcm-members/municipalities.html</a>
Regional Districts' websites and staff contact information	<a href="http://www.ubcm.ca/EN/main/about/ubcm-members/regional-districts.html">http://www.ubcm.ca/EN/main/about/ubcm-members/regional-districts.html</a>
Ministry of Forests, Lands, and Natural Resource Operations (FLNRO) Land use planning websites	<a href="http://www.ilmb.gov.bc.ca/slrp/index.html">http://www.ilmb.gov.bc.ca/slrp/index.html</a>
The Integrated Land and Resource Registry which provides information on crown land legal interests	<a href="http://ilmbwww.gov.bc.ca/ilrr/index.html">http://ilmbwww.gov.bc.ca/ilrr/index.html</a>
The Ministry of Environment's (MOE) websites regarding area specific issues and designations	<a href="http://www.env.gov.bc.ca/wld/">http://www.env.gov.bc.ca/wld/</a>
GeoBC Gateway	<a href="http://www.geobc.gov.bc.ca/">http://www.geobc.gov.bc.ca/</a>
Resource Information Standards Committee (RISC)	<a href="http://www.ilmb.gov.bc.ca/risc/about.htm">http://www.ilmb.gov.bc.ca/risc/about.htm</a>

Statistics Canada information for Proponents on regional economic and employment statistics	<a href="http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E">http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E</a>
<b>5.4 Navigation, Transportation, and Access</b>	
MFLNRO Water Power Project Guidelines Website	<a href="http://www.for.gov.bc.ca/hth/engineering/publications_guidebooks.htm">http://www.for.gov.bc.ca/hth/engineering/publications_guidebooks.htm</a>
Navigational Impact Assessment Requirements for Privately Operated Hydro Facilities in British Columbia: Proponents Guidebook	<a href="http://www.tc.gc.ca/eng/pacific/marine-nwpp-ipp-1320.htm">http://www.tc.gc.ca/eng/pacific/marine-nwpp-ipp-1320.htm</a>
<b>5.4.1 Roads Bridges, and Railroad</b>	
Waterpower Projects: Guidelines for Works that may Impact Forest Roads or Timber Tenures	<a href="http://www.env.gov.bc.ca/wsd/water_rights/waterpower/cabinet/appendix_i.pdf">http://www.env.gov.bc.ca/wsd/water_rights/waterpower/cabinet/appendix_i.pdf</a>
MFR Design Criteria for Works that may Impact Forest Roads or Timber Tenures	<a href="http://www.for.gov.bc.ca/hth/engineering/documents/publications_guidebooks/publications_reports/MOF-IPP-Design-Criteria(July'05)-updated-Aug4-2010.pdf">http://www.for.gov.bc.ca/hth/engineering/documents/publications_guidebooks/publications_reports/MOF-IPP-Design-Criteria(July'05)-updated-Aug4-2010.pdf</a>
Ministry of Forest And Range Publications and Guidebooks	<a href="http://www.for.gov.bc.ca/hth/engineering/publications_guidebooks.htm">http://www.for.gov.bc.ca/hth/engineering/publications_guidebooks.htm</a>
Transport Canada. Minor Waters User Guide 2010.	<a href="http://www.tc.gc.ca/eng/marinesafety/tp-tp14838-3092.htm">http://www.tc.gc.ca/eng/marinesafety/tp-tp14838-3092.htm</a>
<b>5.5 Water Rights</b>	
Discussion of water rights pursuant to the <i>Water Act</i>	<a href="http://www.env.gov.bc.ca/wsd/water_rights/index.htm">http://www.env.gov.bc.ca/wsd/water_rights/index.htm</a>
Basics of a Mine Emergency Response Plan (Sample for reference)	<a href="http://www.llbc.leg.bc.ca/public/pubdocs/bcdocs/461457/merp_basics.pdf">http://www.llbc.leg.bc.ca/public/pubdocs/bcdocs/461457/merp_basics.pdf</a>
<b>7 FIRST NATION INFORMATION REQUIREMENTS</b>	
Consultative Areas Database	<a href="http://geobc.gov.bc.ca/">http://geobc.gov.bc.ca/</a> > Click View > Make a Map
Supporting documentation, including technical instructions for accessing the CAD Public Map Service, is located here:	<a href="ftp://ftp.geobc.gov.bc.ca/pub/outgoing/CAD/CAD_Public_Map_Service-User_Guidance-Technical_Instructions.pdf">ftp://ftp.geobc.gov.bc.ca/pub/outgoing/CAD/CAD_Public_Map_Service-User_Guidance-Technical_Instructions.pdf</a>
INAC. Measuring Well-Being: The Community Well-Being (CWB) Index	<a href="http://www.ainc-inac.gc.ca/ai/rs/pubs/cwb/webdb/webdb_bc-eng.asp">http://www.ainc-inac.gc.ca/ai/rs/pubs/cwb/webdb/webdb_bc-eng.asp</a>

<b>7.3 Project Setting – Traditional Use and Aboriginal Rights/Title Issues in the Project Area</b>	
Ministry of Aboriginal Relations and Reconciliation Final Agreements	<a href="http://www.gov.bc.ca/arr/treaty/final.html">http://www.gov.bc.ca/arr/treaty/final.html</a>
Indian and Northern Affairs Canada – Nisga’a Final Agreement	<a href="http://www.ainc-inac.gc.ca/al/lcd/ccl/fagr/nsga/nfa/nfa-eng.asp">http://www.ainc-inac.gc.ca/al/lcd/ccl/fagr/nsga/nfa/nfa-eng.asp</a>
Indian and Northern Affairs Canada Treaty Guide to Treaty No.8	<a href="http://www.ainc-inac.gc.ca/al/hts/tgu/tr8-eng.asp">http://www.ainc-inac.gc.ca/al/hts/tgu/tr8-eng.asp</a>
<b>8.1 Construction Environmental Monitoring</b>	
Develop with Care Best Management Practices for Develop	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2006/develop_with_care_intro.html">http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2006/develop_with_care_intro.html</a>
Guidelines for metal leaching and acid rock drainage at mine sites in British Columbia	<a href="http://www.empr.gov.bc.ca/Mining/Permitting-Reclamation/ML-ARD/Pages/Guidelines.aspx">http://www.empr.gov.bc.ca/Mining/Permitting-Reclamation/ML-ARD/Pages/Guidelines.aspx</a>
<b>8.2 Operational Environmental Monitoring</b>	
Hatfield, A. A. Lewis & S. Babakaiff (2007). Guidelines for collection and analysis of fish and fish habitat data for the purpose of assessing impacts from small hydropower Projects in British Columbia.	<a href="http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf">http://www.env.gov.bc.ca/wld/documents/bmp/guidelinesIFRv5_2.pdf</a>
Recommended Protocols for Monitoring Impacts to Wind Turbines on Birds.	<a href="http://www.ec.gc.ca/Publications/default.asp?lang=En&amp;xml=C8CE090E-9F69-4080-8D47-0622E115A4FF">http://www.ec.gc.ca/Publications/default.asp?lang=En&amp;xml=C8CE090E-9F69-4080-8D47-0622E115A4FF</a>

## ATTACHMENT 3: DFO REQUIREMENTS WORKING NEAR WATER IN BC & YUKON

The following information was current at the time of writing (April 2011). It is included here for information only and Proponents are advised to contact the federal Department of Fisheries and Oceans directly to discuss federal requirements for the Project.

### **DFO Habitat Management Website – Pacific Region** **[“Working Near Water In BC and Yukon”](#)**

Fisheries and Oceans -Habitat Management Program Pacific Region has a “Working Near Water” website<sup>38</sup> designed to help people undertaking Projects in and around water understand what they need to know and do to comply with the federal *Fisheries Act*.

The website is one component of a broader referral improvement initiative DFO has undertaken to: increase client access to regulatory process information; improve efficiencies and facilitate more effective interagency referral management processes and better support existing streamlined joint Project review partnerships.

The website outlines the DFO regulatory review process for works in and around water, and provides step wise instructions for the public on navigating the DFO review, approval and authorization process. It also directs clients to Project planning and design resources to assist them in developing their Projects in a manner that will conserve or protect fish habitat.

Also included on the site is a [Project Review Application Form](#) (PRAF) which is required for any Project DFO is being requested to review or authorize. While submissions in this format can still be mailed or delivered, clients are also able to submit applications electronically. Referrals should be directed to the appropriate DFO referral centre and electronic submissions should be sent to the appropriate e-mailboxes. The boundaries for the 6 [DFO referral centres](#) can be found on their website.

Please visit DFO’s [“Working Near Water”](#) site for details.

DFO is coordinating with FrontCounter BC to ensure that Proponents proposing Projects near water are informed of the website.

Furthermore, Proponents should be aware that DFO may require sampling beyond RISC standards in order to identify fish presence, in addition to fish abundance and habitat utilization. Sampling in steeper gradient habitats can be very difficult and possibly costly and may require different sampling techniques (e.g. float assessments, possibly even fish counting weirs). For instance, to obtain information on spawning and incubation locations and timing may take additional efforts. This information may be required in order to properly identify and assess impacts and for future monitoring of effects.

Proponents should be aware of the possible costs to obtain this information. Attachment 4: Links of Interest

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<sup>38</sup> See hotlink in Attachment 5: DFO (2010) Working Near Water in BC and Yukon

## ATTACHMENT 4: LINKS OF INTEREST

Provincial and Federal Databases	
Biodiversity BC	<a href="http://biodiversity.bc.ca/">http://biodiversity.bc.ca/</a>
Biodiversity/Environmental Information Resources e-Library	<a href="http://www.env.gov.bc.ca/eirs/bdp/index.html">http://www.env.gov.bc.ca/eirs/bdp/index.html</a>
BC Coast Region: Species and Ecosystems of Conservation Concern	<a href="http://www.geog.ubc.ca/biodiversity/factsheets/">http://www.geog.ubc.ca/biodiversity/factsheets/</a>
BC Conservation Data Centre	<a href="http://www.env.gov.bc.ca/cdc/">http://www.env.gov.bc.ca/cdc/</a>
BC Species and Ecosystems Explorer Conservation Framework	<a href="http://www.env.gov.bc.ca/atrisk/toolintro.html">http://www.env.gov.bc.ca/atrisk/toolintro.html</a>
CLIR (Cross-linked Information Resources)	<a href="http://www.env.gov.bc.ca/clir/">http://www.env.gov.bc.ca/clir/</a>
Conservation Framework	<a href="http://www.env.gov.bc.ca/conservationframework/">http://www.env.gov.bc.ca/conservationframework/</a>
Fish Inventory Summary System (FISS)	<a href="http://www.env.gov.bc.ca/fish/fiss/index.html">http://www.env.gov.bc.ca/fish/fiss/index.html</a>
Forest Range Practices Act (FRPA) information	<a href="http://www.for.gov.bc.ca/code/index.htm">http://www.for.gov.bc.ca/code/index.htm</a>
EcoCat: The Ecological Report Catalogues	<a href="http://www.env.gov.bc.ca/ecocat/">http://www.env.gov.bc.ca/ecocat/</a>
e-Flora BC	<a href="http://www.geog.ubc.ca/biodiversity/eflora/ProtocolsforRarePlantSurveys.html">http://www.geog.ubc.ca/biodiversity/eflora/ProtocolsforRarePlantSurveys.html</a>
Fisheries Inventory	<a href="http://www.env.gov.bc.ca/fish/">http://www.env.gov.bc.ca/fish/</a>
GeoBC	<a href="http://archive.ilmb.gov.bc.ca/geobc/index.html">http://archive.ilmb.gov.bc.ca/geobc/index.html</a>
Habitat Wizard	<a href="http://www.env.gov.bc.ca/habwiz/">http://www.env.gov.bc.ca/habwiz/</a>
HectaresBC	<a href="http://www.hectaresbc.org/app/habc/HaBC.html">http://www.hectaresbc.org/app/habc/HaBC.html</a>
I-Map BC (public and secure site)	<a href="http://www.ilmb.gov.bc.ca/content/e-services/geobc/imapbc">http://www.ilmb.gov.bc.ca/content/e-services/geobc/imapbc</a>
Sensitive Ecosystem Inventory	<a href="http://www.env.gov.bc.ca/sei/">http://www.env.gov.bc.ca/sei/</a>
Soils	<a href="http://www.env.gov.bc.ca/soils/">http://www.env.gov.bc.ca/soils/</a>
Species Inventory Database (SPI)	<a href="http://www.env.gov.bc.ca/wildlife/wsi/siwe.htm">http://www.env.gov.bc.ca/wildlife/wsi/siwe.htm</a>
Terrain	<a href="http://www.env.gov.bc.ca/terrain/">http://www.env.gov.bc.ca/terrain/</a>
Vegetation Resources Inventory	<a href="http://www.for.gov.bc.ca/hts/vri/">http://www.for.gov.bc.ca/hts/vri/</a>
Water Survey Canada (WSC)	<a href="http://www.ec.gc.ca/rhc-wsc/default.asp?lang=En&amp;n=4EED50F1-1">http://www.ec.gc.ca/rhc-wsc/default.asp?lang=En&amp;n=4EED50F1-1</a>

## Federal Websites of Interest

Canadian Environmental Assessment Agency	<a href="http://www.ceaa.gc.ca/default.asp?lang=En&amp;n=D75FB358-1">http://www.ceaa.gc.ca/default.asp?lang=En&amp;n=D75FB358-1</a>
Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	<a href="http://www.cosewic.gc.ca/">http://www.cosewic.gc.ca/</a>
Department of Fisheries and Oceans (DFO) Pacific Region, general information	<a href="http://www.pac.dfo-mpo.gc.ca/index-eng.htm">http://www.pac.dfo-mpo.gc.ca/index-eng.htm</a>
Environment Canada (Air, Water, Climate, Environmental Indicators, Pollution)	<a href="http://www.ec.gc.ca/default.asp?lang=En&amp;n=FD9B0E51-1">http://www.ec.gc.ca/default.asp?lang=En&amp;n=FD9B0E51-1</a>
Environment Canada, links to permits and authorizations	<a href="http://www.ec.gc.ca/default.asp?lang=En&amp;n=48D356C1-1">http://www.ec.gc.ca/default.asp?lang=En&amp;n=48D356C1-1</a>
<i>Navigable Waters Protection Act</i>	<a href="http://laws-lois.justice.gc.ca/eng/acts/N-22/">http://laws-lois.justice.gc.ca/eng/acts/N-22/</a>
Navigable Waters information, Transport Canada	<a href="http://www.tc.gc.ca/eng/marinesafety/oep-nwpp-faqs-202.htm">http://www.tc.gc.ca/eng/marinesafety/oep-nwpp-faqs-202.htm</a>
<i>Species at Risk Act</i>	<a href="http://www.sararegistry.gc.ca/approach/act/default_e.cfm">http://www.sararegistry.gc.ca/approach/act/default_e.cfm</a>
Species at Risk Registry	<a href="http://www.sararegistry.gc.ca/default_e.cfm">http://www.sararegistry.gc.ca/default_e.cfm</a>
Transport Canada; Navigational Impact Assessment Requirements for Privately Operated Hydro Electric Facilities	<a href="http://www.tc.gc.ca/eng/pacific/marine-nwpp-ipp-1320.htm">http://www.tc.gc.ca/eng/pacific/marine-nwpp-ipp-1320.htm</a>

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## ATTACHMENT 5: RECOMMENDED FACTORS TO ASSESS SIGNIFICANCE<sup>39</sup>

1. **Magnitude:** This refers to the magnitude or severity of the effect. Low magnitude effects may have no impact, while high magnitude effects may have an impact.
2. **Geographic Extent:** This refers to the extent of change over the geographic areas of the proposed Project. The geographic extent of effects can be local or regional. Local effects may have a lower impact than regional effects.
3. **Duration and Frequency:** This refers to the length of time the effect lasts and how often the effect occurs. The duration of an effect can be short term or long term. The frequency of an effect can be frequent or infrequent. Short term and/or infrequent effects may have a lower impact than long term and/or frequent effects.
4. **Reversibility:** This refers to the degree to which the effect is reversible. Effects can be reversible or permanent. Reversible effects may have lower impact than irreversible or permanent effects.
5. **Context:** This refers to the ability of the environment to accept change. For example, the effects of a Project may have an impact if they occur in areas that are ecologically sensitive, with little resilience to imposed stresses.
6. **Probability:** The likelihood that an adverse effect will occur in circumstances where it is not certain that the effect will materialize.

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<sup>39</sup> Definitions taken from EAO Application Information Requirements and consistent with the analysis used in federal environmental assessments under the *CEAA*

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## ATTACHMENT 6: DEFINITIONS OF ENVIRONMENTAL MONITORING

**Compliance monitoring** verifies compliance with conditions set forth in the permits and licenses issued to the Proponent enabling the construction and operation of the CEP. This could include, for example, monitoring compliance of instream flows and ramping rates for a water power Project. In this instance, data are to be submitted to the province annually, and monitored continuously by the Proponent such that any non-compliance with the permitted instream flow is identified, acknowledged, and resolved. Non-compliance reports will likely also be required as a condition of the water license, so that any issues are brought to the attention of the relevant regulatory agencies in a timely manner. Details of the monitoring required to enable accurate reporting on compliance with permit and license conditions will be included either in the Construction Environmental Management Plan (CEMP) or Operation Environmental Management Plan (OEMP), depending on the Project phase.

**Effectiveness monitoring** evaluates the effectiveness of mitigation measures on key environmental variables and the accuracy of the environmental assessment in predicting the efficacy of measures adopted to avoid or minimize adverse environmental impacts. Effectiveness monitoring is integral to successful environmental impact assessment under a “results-based” management framework, as it enables regulatory agencies to assess the effectiveness of different mitigation measures. Effectiveness monitoring results can then be carried forward to future impact assessments to improve predictions on the magnitude and extent of impacts. The mitigation measures employed during construction and operation of CEPs will vary based on the Project, location, VCs etc. However, for example, effectiveness monitoring for a wind power Project will evaluate how effective mitigation measures are in reducing bird and bat mortality from turbine strikes. Details on effectiveness monitoring will be described in the OEMP.

**Response monitoring** refers to the long-term monitoring of parameters to determine if the Project is having an effect on the environment. Thus, while effectiveness monitoring examines VCs with respect to specific mitigation measures, response monitoring seeks to establish whether operation of the Project as a whole is having long-term effects on VCs. Response monitoring requires the repetitive and systematic sampling to establish empirical links between Project development and operation and any impacts on the environment. Response monitoring therefore benefits from a rigorous understanding of pre-Project baseline conditions and natural variations. A year or two of pre-construction data collection is recommended to allow for a before-after-control-impact (BACI) design.

It is recommended that Proponents include a number of different VCs in the monitoring program, including the priority VCs identified by the province in section 4. If additional species are proposed: a) select candidates based on ability to represent other species (ecological indicators); b) select candidates based on sensitivity to disturbance caused by the proposed development. All details on response monitoring are to be included in the OEMP.

Examples of response monitoring would include: monitoring of impacts on bird or bat populations in the area surrounding a wind power Project, and monitoring of fish populations to ensure there are no long-term effects of reduced flow or entrainment associated with a water power Project

# ATTACHMENT 7: ADDITIONAL CONSIDERATIONS FOR CROWN LAND RESOURCES

(Supplemental to section 5.2: and 5.3)

## Crown Timber Resources:

If CEP has the potential to impact Crown Timber resources, please consider addressing the following:

1. Has there been communication with all affected forest tenure holders, including BCTS and First Nations who have Forest and Range opportunity agreements?
2. Have specific consideration of power line clearances along logging roads been included? Proponents may wish to keep pole heights as low as possible, but this transfers costs to forest licensees.
3. Have any potential tenure impacts and/or impacts to forest obligations (e.g. Cutting Permits (CPs), Forest Stewardship Plans (FSPs), silviculture investments, etc.) been identified and quantified?
4. Have the following timber supply impacts been quantified:
  - Any isolation of timber;
  - Removal of forest land (including species, productivity, value, merchantability);
  - Displacement effects (e.g. if a “special management area” is impacted and is subsequently required to be moved onto the productive forest land base), and;
  - Impacts to forestry tenures.
5. Are there any significant changes to delivered wood costs, including but not limited to:
  - Increasing haul times;
  - Loss of helicopter harvesting opportunities (due to transmission lines);
  - Water access concerns (note: *delivered wood costs* include the costs of accessing and harvesting timber and delivering it to a mill and can be increased due to timber isolation or insufficient pole heights at road crossings, or decreased if roads are upgraded)
6. Discuss how the Project will minimize the permanent “footprint” of the unproductive lands created by land clearing for the CEP Project and identify and describe revegetation opportunities that include reforestation.

Also, please review [FRPA General Bulletin #16: Application of FRPA to Independent Power Producers, Mineral Interests and Other Occupiers of the Land](#), which identifies a number of considerations, including some legally required forest practices that must be considered by CEP Proponents and address compliance in the Development Plan. (See [Attachment 2](#) for hotlink).

## Commercial Tourism / Outdoor Recreation Resources:

If CEP has the potential to impact Commercial Tourism / Outdoor Recreation resources, please consider addressing the following:

1. Describe the commercial tourism and outdoor recreation activities practiced in the study area including ecotourism, adventure tourism, backcountry tourism, sport and recreational hunting and fishing activities, guiding, trapping, outdoor activities (e.g. canoeing, kayaking, sailing,

hiking, camping, mountain climbing, wildlife viewing, scuba diving), viewing sites of historical interest and resorts.

2. Identify the areas within the study boundaries that are of special recreational interest. Outline the number of persons practicing these activities, the sites used, the frequency and duration of the activities, the period of the year, the practices and expectations of users, as well as the economic contributions to Aboriginal and local communities. For sport hunting and fishing activities, the description will also include the species sought and, where possible, the hunting and fishing success.
3. Describe the existing infrastructure in place which makes it possible to practice these activities and identify the stakeholders operating recreational-tourism enterprises in the study area. The various organizations involved in tourism and commercial recreation development of the region will be identified including, if possible, the location and description of their development.

End of Document