



WEBEQUIE SUPPLY ROAD FINAL ENVIRONMENTAL ASSESSMENT REPORT / IMPACT STATEMENT

January 30, 2026

AtkinsRéalis Ref: 661910

SECTION 5: Environmental Assessment/Impact Assessment Approach and Methods



WEBEQUIE FIRST NATION

AtkinsRéalis



Contents

- 5. Environmental Assessment / Impact Assessment Approach and Methods..... 5-4**
- 5.1 Identification of Valued Components 5-5
- 5.2 Assessment of Effects on Valued Components..... 5-7
 - 5.2.1 Scope of the Assessment 5-8
 - 5.2.1.1 Regulatory and Policy Setting 5-8
 - 5.2.1.2 Consideration of Input from Engagement and Consultation Activities..... 5-8
 - 5.2.1.3 Incorporation of Indigenous Knowledge and Land and Resource Use Information 5-9
 - 5.2.1.4 Spatial and Temporal Boundaries 5-11
 - 5.2.1.5 Identification of Project Interactions with VCs 5-12
 - 5.2.2 Existing Conditions 5-14
 - 5.2.2.1 Gender Based Analysis Plus (GBA+) Approach 5-14
 - 5.2.3 Identification of Potential Effects, Pathways and Indicators 5-15
 - 5.2.3.1 Gender Based Analysis Plus (GBA+) Approach 5-15
 - 5.2.4 Mitigation and Enhancement Measures 5-16
 - 5.2.4.1 Gender Based Analysis Plus (GBA+) Approach 5-17
 - 5.2.5 Characterization of Net Effects 5-17
 - 5.2.6 Determination of Significance 5-20
 - 5.2.7 Assessment of Cumulative Effects 5-25
 - 5.2.8 Prediction Confidence in the Assessment 5-27
 - 5.2.9 Follow-up and Compliance Monitoring Programs..... 5-27
- 5.3 Assessment of Other Effects 5-28
 - 5.3.1 Assessment of Accidents and Malfunctions 5-29
 - 5.3.2 Effects of the Environment on the Project 5-29
 - 5.3.3 Effects of the Project in the Context of Canada’s Environmental Obligations.. 5-29
 - 5.3.4 Project’s Contribution to Sustainability 5-30
- 5.4 Summary of the Assessment..... 5-31
 - 5.4.1 Evaluate the Advantages and Disadvantages 5-31
- 5.5 References..... 5-32

In Text Figures

- Figure 5.1: Effect Assessment Steps 5-8
- Figure 5.2: Illustration of the Approach for Collection of Indigenous Knowledge and Land and Resource Use Information 5-10

Contents (Cont'd)

In-Text Tables

Table 5-1:	Project Interactions with (VC Name) and Potential Effects	5-12
Table 5-2:	Baseline Study Appendices	5-14
Table 5-3:	Potential Effects, Pathways and Indicators for (VC Name)	5-15
Table 5-4:	Summary of Potential Effects, Mitigation Measures and Predicted Net Effects for (VC Name)	5-17
Table 5-5:	Criteria for Characterization of Predicted Net Effects on (VC name)	5-18
Table 5-6:	Summary Example of Predicted Net Effects on [VC name]	5-19



5. Environmental Assessment / Impact Assessment Approach and Methods

Provincial Environmental Assessment and federal Impact Assessment (EA/IA) processes are planning and decision-making tools used to predict environmental effects of a project prior to a project being carried out. This section describes the methods used to assess the effects of routine project activities and components, accidents and malfunctions, and cumulative effects of the Project, including the Project's contribution to sustainability and the project effects in terms of meeting Canada's environmental obligations and commitments. The methods used to prepare this Environmental Assessment Report / Impact Statement (EAR/IS) have been developed by the consultant Project Team (led by AtkinsRéalis) in accordance with the requirements under the federal *Impact Assessment Act* (IA Act, 2019) and the Ontario *Environmental Assessment Act* (EAA, 1990). These methods were also guided by the federal regulatory requirements, pursuant to the IA Act, as described in the Tailored Impact Statement Guidelines (TISG) for the Project, dated February 24, 2020 (IA Act, 2020) and the provincial regulatory requirements, pursuant to the EAA, as set out in the provincial approved Environment of Assessment (EA) Terms of Reference (ToR) for the Project, dated October 8, 2021 (ToR). Concordance tables for the TISG and the ToR are provided in Appendix A-1 and Appendix A-2, respectively. The concordance tables indicate where the requirements and commitments of the TISG and the ToR are addressed in the EAR/IS.

This EAR/IS examines the potential effects that could result from changes to the environment, health, social or economic conditions as a result of the Project being carried out, including effects to Indigenous Peoples and impacts on the exercise of Aboriginal and Treaty rights (Section 19). The aspects determined to be within the scope of the Project were examined using a precautionary approach to eliminate, reduce or mitigate adverse environmental, health, social and economic effects, including the prediction of net effects (or "residual effects", as referred to in federal guidance documents) and their significance after the application of mitigation. This EAR/IS uses a precautionary, conservative approach, with conservative assumptions generally applied to overestimate rather than underestimate potential adverse effects, and also predicts positive consequences, where applicable. Throughout the EA/IA process for the Project, opportunities have been and will continue to be provided for meaningful participation from Indigenous communities and groups, the public, government agencies, and stakeholders, including opportunities to provide comments on:

- Initial Project Description and Detailed Project Description (2019);
- Draft TISG and supportive Plans (i.e., Indigenous Engagement and Partnership Plan, Public Participation Plan, Permitting Plan, Cooperation Plan) (2019 – 2021);
- Draft and final ToR (2019 – 2021);
- The draft EAR/IS and final EAR/IS;
- The Ministry Review to be prepared by the Ministry of the Environment, Conservation and Parks on the Final EAR/IS; and
- Draft IA Report to be prepared by the Impact Assessment Agency of Canada (the Agency).

As discussed in Section 2 (Engagement and Consultation Summary), Webequie First Nation will continue providing opportunities for such participation and will pursue positive and constructive relationships with other Indigenous communities and groups, the public, government agencies, and stakeholders throughout the life of the Project. Information gathered during engagement activities has informed the EAR/IS, including the assessment methods (Sections 5.1 to 5.4).



The EAR/IS has been developed pursuant to the Project's TISG and ToR. As noted in Section 1.4, the TISG and the ToR establish the parameters and scope of the EA/IA required for the Project, which includes:

- Purpose of and need for the Project (Section 1);
- Alternatives to the Project and alternative means of carrying out the Project, including evaluating alternatives based on consideration of environmental, social and technical feasibility and their potential effects (Section 3);
- Input from Indigenous communities and groups, the public, government agencies, and stakeholders, including specific responses to comments and concerns identified through engagement (Sections 6 to 20);
- Indigenous knowledge and land and resource use, including assessment on impacts to the exercise of Aboriginal and Treaty rights (Sections 6 to 20, Section 19);
- Existing conditions (Sections 6 to 20);
- Effects of the Project, including effects due to accidents and malfunctions (Sections 6 to 20, Section 23);
- Technically and economically feasible mitigation measures to eliminate or reduce adverse effects or enhance or prolong beneficial effects (Sections 6 to 20, Appendix E);
- Net beneficial or harmful effects (after applying mitigation measures) that are likely to be caused by the Project regardless of the proper application of mitigation and remedial measures to be proposed in the EAR/IS (Sections 6 to 20);
- Significance of the identified net effects (Sections 6 to 20);
- Cumulative effects of the net effects of the Project in combination with other past, present or reasonably foreseeable future physical activities with effects likely to overlap both spatially and temporally with the predicted net effects of the Project (Section 21);
- Requirements for follow-up monitoring programs (Section 22);
- Changes to the Project that may be caused by the environment (e.g., climate change) (Section 24);
- Effects of the Project in terms of Canada's Environmental Obligations and Commitments (Section 25);
- Project's Contribution to Sustainability (Section 26);
- Consideration of outcomes from the federal Regional Assessment in the Ring of Fire area (Section 21), if available; and
- The future predicted condition of the environment without the Project (Sections 6 to 20).

5.1 Identification of Valued Components

The approach in identifying valued components (VCs) for this Project was consistent with the requirements of the TISG and ToR, including consideration of the VC's role in the ecosystem, the value placed on it by humans, including those using the affected area, and the functional relationships within the environment. VCs were identified with consideration of the following:

- Regulatory guidance and requirements, including those identified in the TISG and ToR;
- The Code of Practice: Preparing and Reviewing Environmental Assessments in Ontario (MOE, 2014);
- Discussions with government agencies, technical experts, Indigenous communities and groups, the public and stakeholders during the pre-EAR/IS submission period;
- Technical knowledge of the Project (i.e., the nature and extent of project components and activities);



- Existing conditions for the physical, biological, social, economic and health environments;
- Ongoing engagement with Indigenous communities and groups;
- Ongoing consultation with the public, government agencies, and key stakeholders;
- Lessons learned from previous similar EA/IAs; and
- Professional judgment based on the experience of the Consultant Project Team (AtkinsRéalis) and the Webequie Project Team, consisting of community members from Webequie First Nation.

The following VCs and Indigenous values were identified for the EAR/IS:

- Geology, Terrain, and Soils;
- Surface Water Resources;
- Groundwater Resources;
- Atmospheric Environment:
 - Air Quality;
 - Climate Change;
 - Noise and Vibration; and
 - Light Levels.
- Fish and Fish Habitat;
- Vegetation and Wetlands;
- Wildlife and Wildlife Habitat;
- Species at Risk;
- Social Environment;
- Economic Environment;
- Non-Traditional Land and Resource Use;
- Human Health;
- Visual Environment;
- Indigenous Peoples and Aboriginal and Treaty Rights and/or Interests; and
- Cultural Heritage Resources:
 - Built Heritage Resources;
 - Cultural Heritage Landscapes; and
 - Archaeological Resources.

This EAR/IS provides separate sections to describe each VC, the rationale for the VC's selection, a summary of the project-related comments that have been raised, and linkages to other VCs. The assessment of VCs is provided in Sections 6 to 20 of the EAR/IS. Each section includes the VC-specific measurable indicators that were identified for each assessment and the rationale for the selection of those indicators. A detailed discussion of project interactions is also provided in each VC section and considers the construction and operations phases of the Project.



5.2 Assessment of Effects on Valued Components

The effects assessment for each VC examines the degree and nature of change to, and resulting potential effects on, the existing environment that may occur as a result of planned-project activities. The effects assessment considers the interactions among the VCs, including the extent to which biological diversity may be affected and the Project's contribution to sustainability. Existing conditions for each VC, therefore, are considered in the effects assessment to determine the sensitivity or resiliency of the VC to disturbance and/or change. The following subsections describe the organization and approach for the assessment of potential effects as a result of planned-Project activities. A high-level description of the effects assessment method used in the EAR/IS for VCs is shown in **Figure 5.1**, based on the following guidance documents:

- Webequie Supply Road Tailored Impact Statement Guidelines (IA ACT C, 2020);
- Webequie Supply Road Environmental Assessment Terms of Reference (Webequie First Nation, 2020);
- Assessing Cumulative Environmental Effects under the Canadian *Environmental Assessment Act*, 2012 (CEA Agency, 2018b); and
- Practitioner's Guide to Federal Impact Assessments (IA ACT C, 2022).

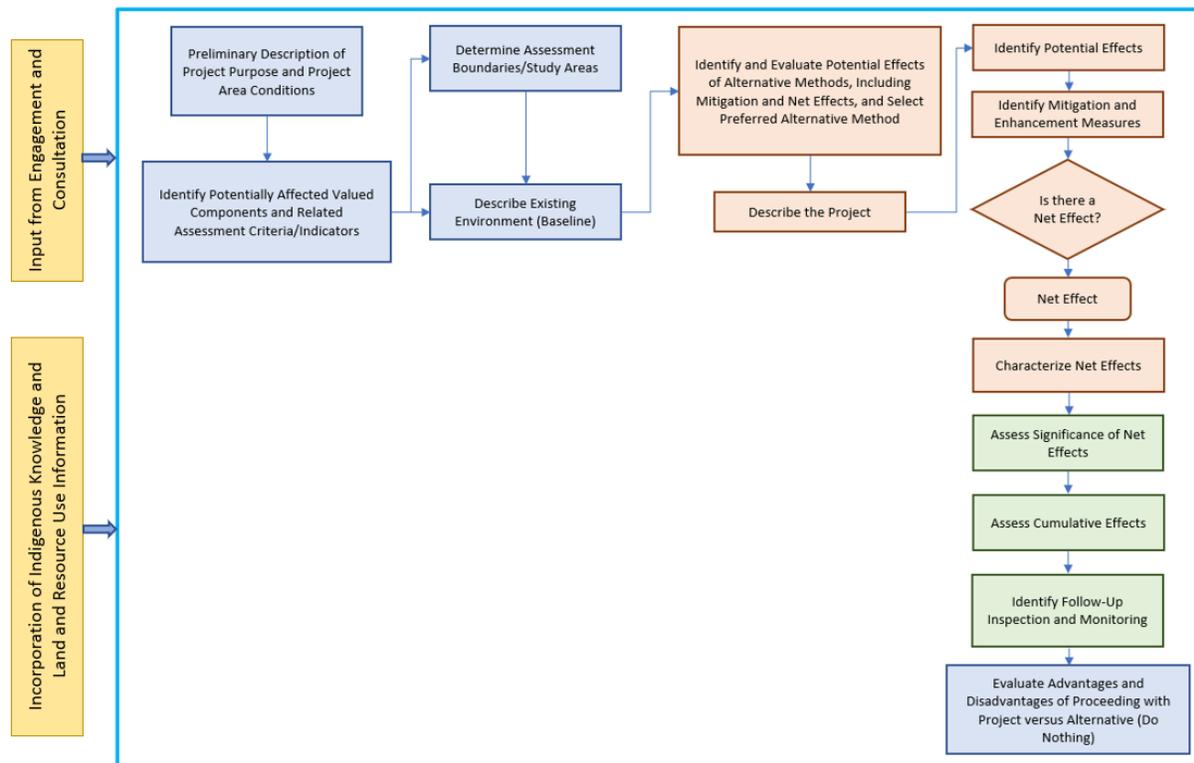
Methods include the following generalized steps and are described further in **Sections 5.2.1** to **5.2.9** and in respective VC sections.

- Describing Scope of Assessment (see **Section 5.2.1**);
- Describing Existing Conditions (see **Section 5.2.2**);
- Identification of Potential Effects, Effect Pathways and Indicators (see **Section 5.2.3**);
- Identification of Mitigation Measures (see **Section 5.2.4**);
- Characterization of Net Effects (see **Section 5.2.5**);
- Determination of Significance (see **Section 5.2.6**);
- Prediction Confidence in Assessment (see **Section 5.2.8**);
- Assessment of Cumulative Effects (see **Section 5.2.8**); and
- Follow-up and Compliance Monitoring Programs (see **Section 5.2.9**).

Note for the specific valued components of vegetation and wetlands (Section 11), wildlife and wildlife habitat (Section 12); and species at risk (Section 13) there is a requirement in the federal TISG to apply a "Threat Assessment Approach". The Threat Assessment Approach is a staged assessment approach involving an initial assessment of the effects of the Project or "Threat Assessment" without consideration of mitigation, followed by an assessment of the predicted net effects with consideration of mitigative measures. In the steps above the Threat Assessment occurs following the identification of potential effects, effect Pathways and indicators and prior to identification of mitigation. Further details on the Threat Assessment Approach are described in Sections 11, 12 and 13.



Figure 5.1: Effect Assessment Steps



5.2.1 Scope of the Assessment

The scope of the Project is defined by the components and activities required to construct and operate the Webequie Supply Road (WSR) and supportive infrastructure (e.g., construction camps, aggregate/rock source areas, operations and maintenance facility). Project components and activities are described in Section 4 (Project Description). The regulatory and policy setting, consideration of input from engagement and consultation, incorporation of Indigenous Knowledge, identification of VCs, and the spatial and temporal boundaries are discussed in the following subsections.

5.2.1.1 Regulatory and Policy Setting

The EA/IA was guided by the federal regulatory requirements, pursuant to the IA Act, as described in the federal TISG for the Project and the provincial regulatory requirements, pursuant to the EAA, as set out in the ToR. Each VC section describes the regulatory context of the VC, including relevant guidelines and legislation that inform and guide the assessment of potential project effects on the VC.

5.2.1.2 Consideration of Input from Engagement and Consultation Activities

The assessment approach for the Project has been guided by the Webequie First Nation Three-Tier approach to consultation, whereby neighbouring First Nations are engaged/consulted in a respectful manner that acknowledges and reflects the culture, traditions and beliefs of their people and ancestors, and the shared history and aspirations of its neighbouring communities. The Three-Tier approach consists of: a Core Tier – Webequie First Nation; a Regional Tier – First Nation Neighbours and

Government Agencies; and a Foundational Tier – Social and Economic Benefits from the Land. Details on the Three-Tier framework with respect to the approach to engagement and consultation are presented in Section 2.

Consultation and engagement for the Project considered input from Indigenous communities and groups, the public, government agencies, and stakeholders. Consultation activities are described in Section 2. Correspondence with Indigenous communities is appended in the Record of Engagement and Consultation. Input received has been considered by the Project Team in preparing this EAR/IS. Key issues and how they are addressed are summarized in Section 2 and/or in relevant VC sections of the EAR/IS. Each VC section of the EAR/IS provides a table with a summary of and location in the EAR/IS where the key issues or concerns raised by Indigenous communities and groups, the public, government agencies, and stakeholders that were considered and/or contributed to the characterization of existing baseline conditions, effects assessment, mitigation and follow-up monitoring.

5.2.1.3 Incorporation of Indigenous Knowledge and Land and Resource Use Information

For the purposes of this EAR/IS, Indigenous Knowledge refers to Indigenous systems of knowledge, as well as cultural practices related to the creation of knowledge based on traditional belief systems, relationships to the environment, and community practices. It is the accumulated and living knowledge built upon the historic and current experiences of Indigenous Peoples living on the land and adapting to social, economic, environmental, spiritual, and political change (Chiefs of Ontario, n.d.). It includes knowledge about the natural environment (e.g., locations of Caribou seasonal use and calving areas), the relationships between environmental changes and species or ecosystems, and how potential effects to the environment can be eliminated or minimized.

Indigenous Land and Resource Use refers to specific areas and resources used for traditional purposes when Indigenous Peoples learn and practice their Indigenous Knowledge and Indigenous land and resource use. This includes the areas and sites used for hunting, trapping, fishing, and gathering and the resources harvested, as well as cultural sites (Garvin et al., 2001). As part of the Indigenous Knowledge and Land and Resource Use (IKLRU) Program for the Project, efforts have been made to seek IKLRU information from Indigenous communities and groups who are willing to share such information that is either specific or not specific to the project area. The IKLRU Program specifically aims to engage and collaborate with Indigenous communities and groups on the collection and incorporation of Indigenous Knowledge and land and resource use information into the EA/IA. The key objective of the IKLRU Program is to provide opportunities to Indigenous communities and groups to meaningfully participate in the EA/IA process by engaging in the baseline characterization and assessment of potential effects of the Project, including effects to Aboriginal and Treaty rights and interests (refer to Section 19).

Indigenous Knowledge was incorporated in the EAR/IS in the following ways:

- Sharing of historical, cosmological, and spiritual learnings that provide context and direction for a community;
- Physical and cultural heritage of each Indigenous community, including burial sites, values of spiritual, cultural, sacred and/or historical importance and meanings attached to places, plants, animals, objects, beings, or things;
- Areas of Indigenous land and resource use for traditional purposes presently or historically practiced (e.g., hunting, trapping, fishing, and plant harvesting areas); as defined by location, frequency, duration and/or timing of these activities; types of resources used and their habitats; the quantity and

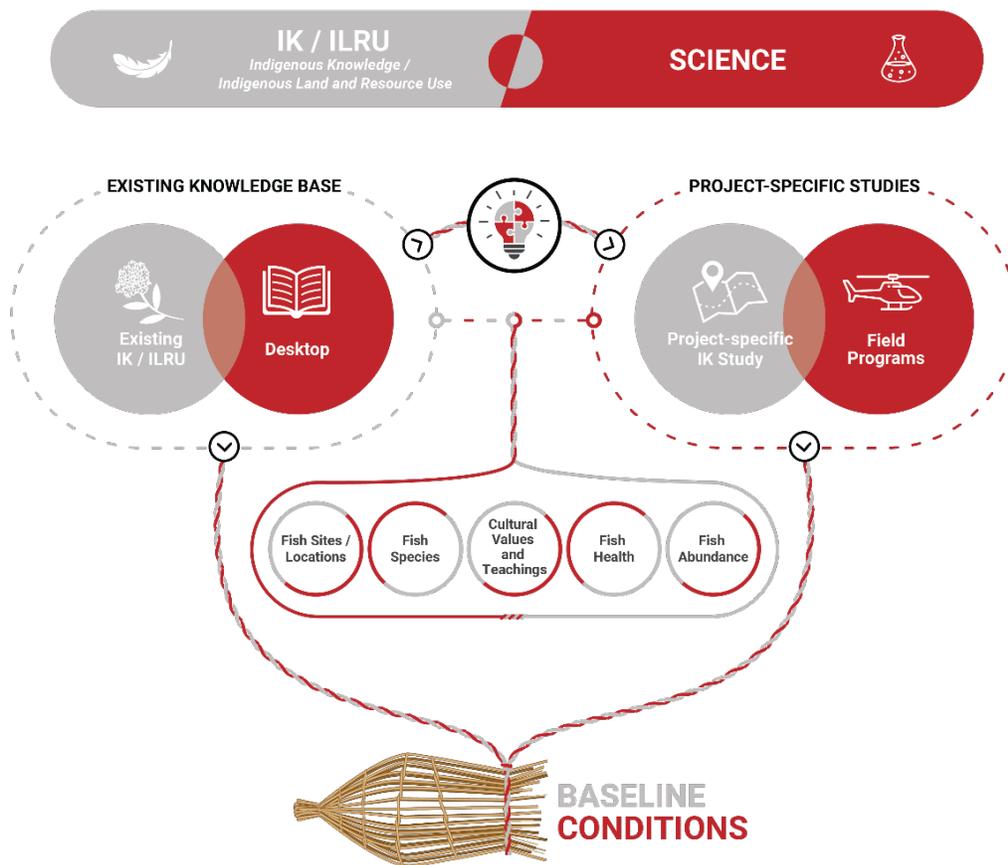


quality of resources; culturally important resources and places they are harvested; access to resources or places used;

- Cultural practices such as resource preparation and use; values associated with, and importance assigned to resources; and
- Knowledge regarding the existing environment and trends within the study area in both past and present, including locations or areas of specific importance for wildlife, fish, and/or vegetation (e.g., calving areas, spawning areas, plants).

Figure 5.2 illustrates the approach adopted by the Project Team to engage communities for collection of IKLRU information, validation, and incorporation into the EA/IA, using aspects related to fish and fish habitat as an example for illustrative purposes. As shown on **Figure 5.2**, IKLRU information may be provided through previously documented work or requires that the information be collected as part of the Project.

Figure 5.2: Illustration of the Approach for Collection of Indigenous Knowledge and Land and Resource Use Information, Using Aspects Related to Fish and Fish Habitat as an Example for Illustrative Purposes



To date, the following First Nations have provided IKLRU information to the Project Team:

- Webequie First Nation;
- Marten Falls First Nation;



- Weenusk First Nation;
- Kashechewan First Nation; and
- Fort Albany First Nation.

Due to confidentiality constraints and the need to respect the wishes of Indigenous communities and groups about sharing of IKLRU information, it may not be possible to illustrate or describe the location or bounds of features and/or sensitivities of value or interest to communities, such as boundaries of Indigenous territories or areas of spiritual, cultural and/or sacred importance. The IKLRU information both sensitive and non-sensitive was used to inform the EA/IA with respect to understanding existing conditions and sensitivities, and for the effects assessment including recommended mitigation measures and monitoring program. The IKLRU information provided to date is for use in the EA/IA phase only, in accordance with data sharing agreements between the Webequie First Nation and the above listed First Nations and are consistent with the principles of First Nation Ownership, Control, Access and Possession as defined by the First Nations Information Governance Centre. Confidential information from First Nations used to inform the EA/IA may also be shared with the proponent constructor and/or operator, who are unknown at this time. Where First Nations are prepared to share IKLRU information with the future constructor or operator, separate data sharing agreements are anticipated for the use, storage and disclosure of confidential information.

5.2.1.4 Spatial and Temporal Boundaries

The following subsections outline the spatial and temporal assessment boundaries defined for VCs. Each VC section includes details on VC-specific spatial boundaries.

5.2.1.4.1 Spatial Boundaries

Spatial boundaries define the geographic extent of the potential environmental, health, social and economic effects of the Project. As such, spatial boundaries define the study areas for the effects assessment and vary depending on the VC. The spatial boundaries for the EA/IA were refined and validated through input from Indigenous communities and groups, the public, government agencies, and other stakeholders.

The spatial boundaries defined for the EA/IA include three categories of study areas: the “Project Footprint” or Project Development Area, the “Local Study Area” and “Regional Study Area”:

- **Project Footprint (PF)** – the area of direct disturbance (i.e., the physical area required for project construction and operations). The PF is defined as the 35-metre wide WSR Right-of-Way (ROW); and temporary or permanent areas needed to support the Project that include laydown yards, storage yards, construction camps, access roads and aggregate extraction sites.
- **Local Study Area (LSA)** – the area where potential largely direct, and indirect effects of the Project are likely to occur and can be predicted or measured for assessment. The LSA, which is specific to each VC, extends from the Project Footprint and is selected in consideration of the geographic extent of potential effects on the given VC.
- **Regional Study Area (RSA)** – the area where potential largely indirect and cumulative effects of the Project in the broader, regional context may occur. The RSA includes the LSA and extends on each side of the LSA boundaries to include the geographical extent to which potential effects from the Project may be expected on the given VC.

In some parts of the EAR/IS, “the project area” (or “the WSR area”) is used to provide a general context of the environmental setting for the general area within and adjacent to the proposed Project Footprint.



5.2.1.4.2 Temporal Boundaries

Temporal boundaries for the assessment address the potential effects of the Project over relevant timescales. The temporal boundaries for the Project consist of two main phases:

- **Construction Phase:** All activities associated with the initial development of the road and supportive infrastructure from the start of construction to the start of operations and maintenance of the Project and is estimated to be approximately 5 to 6 years in duration.
- **Operations Phase:** All activities associated with operations and maintenance of the road and permanent supportive infrastructure (e.g., operations and maintenance yard, aggregate extraction and processing areas) that will start after construction activities are complete, including site restoration and decommissioning of temporary infrastructure (e.g., access roads, construction camps, etc.). The Operations Phase of the Project is anticipated to be 75 years based on the expected timeline for when major refurbishment of road components (e.g., bridges) is deemed necessary.

The Project is proposed to be operated for an indeterminate time period; therefore, future suspension, decommissioning and eventual abandonment is not evaluated in the EA/IA (refer to Project Description, Section 4.4).

5.2.1.5 Identification of Project Interactions with VCs

Potential project interactions for each VC are identified through a review of the Project Description (Section 4) and existing conditions in the PF and respective LSA and RSA defined for the VC. This review focuses on possible interactions between the VC and the Project within the identified spatial and temporal boundaries. For each potential effect, the physical activities that might interact with the VC and result in the potential effect are identified. **Table 5-1** is a sample description of the project interactions with a VC.

Table 5-1: Project Interactions with (VC Name) and Potential Effects

Project Activities	Potential Effects	
	Effect 1	Effect 2
Construction		
Mobilization of Equipment and Supplies: Transport of equipment, materials and supplies to the Project site area using the winter road network and airport in Webequie.		
Surveying: Ground surveys are conducted to stake (physically delineate) the road right-of-way (ROW) and supportive infrastructure components of the Project (i.e., construction camps, access roads, laydown/storage areas, and aggregate extraction and processing areas).		
Vegetation Clearing and Grubbing: Clearing and grubbing of vegetation (forest & wetland), including removal, disposal and/or chipping.		
Construction and Use of Supportive Infrastructure: This includes temporary construction camps, access roads and watercourse crossings, laydown/storage areas, and aggregate extraction (pits & quarries) and processing areas (screening, crushing), including blasting.		
Construction of Road: removal and stockpiling of organics, subgrade excavation, placement of fill and gravel, grading and drainage work (e.g., road ditches, erosion protection, etc.).		
Construction of Structures at Waterbody Crossings: Culverts and bridges – foundations (e.g., pile driving and concrete works), bridge girders, bridge decks, install of culverts.		



Project Activities	Potential Effects	
	Effect 1	Effect 2
Decommissioning / Closure of Temporary Aggregate Extraction and Processing Areas (pits and quarries): Demobilization of extracting and processing equipment, grading and site reclamation/revegetation. This also includes formalizing / re-purposing select pits and quarries proposed as permanent Project components during operations.		
Decommissioning of Temporary Construction Camps, Access Roads and Laydown / Storage Areas: Grading and site reclamation/revegetation. This also includes formalizing / re-purposing select access roads to permanent pits and quarries and a construction camp to an operations and maintenance facility as Project components for use during operations.		
Emissions, Discharges and Wastes ¹ : Noise, air emissions / greenhouse gases (GHGs), water discharge, and hazardous and non-hazardous wastes.		
Completion of Project-Wide Clean-up, Site Restoration / Reclamation and Demobilization: Clean-up of excess materials, site revegetation and demobilization of equipment and materials.		
Potential for Accidents and Malfunctions ² : Spills, vehicle collisions, flooding, forest fire and vandalism.		
Employment and Expenditures ³ .		
Operations		
Road Use: Light and heavy vehicles and maintenance equipment with average annual daily traffic volume of less than 500 vehicles.		
Operation, Maintenance and Repair of Road: Includes: vegetation management control within road ROW; repairs/resurfacing of road granular surface and shoulders; dust control; winter/seasonal maintenance (i.e., snow clearing); road drainage system cleanout/repairs to culverts, ditches and drainage outfalls; rehabilitation and repairs to structural culverts and bridges; and road patrols for inspection.		
Operation of Pits, Quarries and Maintenance Yard/Facility: Includes periodic extraction and blasting and processing operations (i.e., crushing, screening) and stockpiling of rock and aggregate materials. Also includes operation and repairs of Maintenance Yard/Facility and components within (office buildings, parking, storage of equipment and materials).		
Emissions, Discharges and Wastes ¹ : Noise, air emissions / GHGs, water discharge, and hazardous and non-hazardous wastes.		
Potential for Accidents and Malfunctions ² : Spills, vehicle collisions, flooding, forest fire and vandalism.		
Employment and Expenditures ³ .		

Notes:

✓ = Potential interaction

– = No interaction

¹ Emissions, Discharges, and Wastes (e.g., air, noise, light, solid wastes, and liquid effluents) are generated by many project activities. Rather than acknowledging this by placing a checkmark against each of these activities, "Emissions, Discharges, and Wastes" is included as an additional component under each project phase.

² Accidents and Malfunctions including spills, vehicle collisions, flooding, forest fire and vandalism may occur at any time during construction and operations of the Project. Rather than acknowledging this by placing a checkmark against each of these activities, "Potential for Accidents and Malfunctions" is an additional component under each project phase. The potential effects of accidental spills are assessed in Section 23 – Accidents and Malfunctions.

³ Project employment and expenditures are generated by most project activities and components and are the main drivers of many socio-economic effects. Rather than acknowledging this by placing a checkmark against each of these activities, "Employment and Expenditures" is an additional component under each project phase.



5.2.2 Existing Conditions

The existing conditions characterize the conditions from historical and present activities in the Project Footprint, LSAs and RSAs. Existing conditions for each VC are established based on data collected from the review of background information and studies (i.e., desktop review), field programs, engagement and consultation activities, and from IKLRU information. A description of the existing environment is completed for each VC to provide context for determining the potential effects and is presented in each of the VC sections (Sections 6 to 20).

Table 5-2 identifies baseline studies that have been completed in support of the Project between 2019 and 2023. Reports documenting these studies have been appended to this EAR/IS as appendices, which in some cases include and are combined with the technical effects assessment for a VC. Results from these studies are summarized in the respective VC Section (Sections 6 to 20), with the detailed findings provided in the Baseline Study Appendices.

Table 5-2: Baseline Study Appendices

Appendix Number	Baseline Study Appendix Name
Appendix F	Natural Environment Existing Conditions Report
Appendix G	Air Quality Impact Assessment Report
Appendix J	Noise and Vibration Impact Assessment Report
Appendix L	Socio-Economic Existing Conditions Report
Appendix O	Country Foods Assessment
Appendix P	Human Health Risk Assessment
Appendix Q	Health Impact Assessment
Appendix R	Visual Impact Assessment Report
Appendix S	Cultural Heritage Existing Conditions and Impact Assessment Report
Appendix T	Stage 1 Archaeological Assessment Report

5.2.2.1 Gender Based Analysis Plus (GBA+) Approach

The TISG requires that the EAR/IS includes the application of GBA+ in characterizing existing social, economic, and health conditions for diverse subgroups to support the full scope of potential adverse and positive effects of the Project. GBA+ is an analytical process and framework that provides a method for the assessment of systemic inequalities and a means to assess how diverse or potentially vulnerable groups of people may experience policies, programs and initiatives. Where feasible, available data on existing conditions of social environment, economic environment, human health have been disaggregated to describe existing conditions for distinct populations and vulnerable groups including women, youth, two-spirited and gender diverse persons, disabled persons and Elders, with respect to the Project. Appendix L (Socio-Economic Existing Conditions Report) outlines methods of data collection and analysis for GBA+. Detailed methods and results of data analysis relevant to GBA+ are provided in Appendix M (GBA+ Webequie Supply Road Report).



5.2.3 Identification of Potential Effects, Pathways and Indicators

For each VC, potential effects and project effect pathways (direct and/or indirect) are identified. The Project pathways describe how Project activities could result in a potential effect (e.g., site grading may cause ground hardening and result in decreased infiltration of precipitation) during each project phase (i.e., construction and operations). The assessment of effect pathways is presented in the individual VC assessment sections.

The measurable parameters and units of measurement, referred to as “Indicators”, used to assess potential effects are also identified. In general, indicators represent a resource, feature or issue related to a VC that if changed from the existing baseline conditions may demonstrate a positive or negative effect. Quantitative indicators are used where possible, with qualitative parameters and units of measurement identified where the nature of the effect or available data does not allow for a quantitative assessment. Potential effects and indicators have been selected based on review of the Project Team’s experience with EAs in Ontario and other parts of Canada, input received during engagement and consultation activities, and professional judgment. Linked VCs that represent VC assessments that can be informed by or inform the assessment of other VCs are also identified. **Table 5-3** is a sample summary of potential effects, effects pathways and indicators for a VC.

Table 5-3: Potential Effects, Pathways and Indicators for (VC Name)

Potential Effect	Project Phase	Effect Pathway	Effect Indicators	Nature of Interaction and Effect (Direct or Indirect)	Linked VCs
Effect 1 (e.g., Change in soil quality)		Project construction and maintenance can change soil quality. Chemical or hazardous material spills.			
Effect 2 (e.g., Change in terrain (landforms) and terrain suitability)		Changes to hydrology may alter terrain.			

5.2.3.1 Gender Based Analysis Plus (GBA+) Approach

The TISG requires that the proponent analyze a community and Indigenous Knowledge across diverse subgroups where possible to identify and assess effects and disaggregate the source of community or Indigenous Knowledge, as well as social, economic, and health data, by representation by sex, age and other community-relevant identity factors to support identification of disproportionate effects from project activities through the application of GBA+ approach.

Appendix Q (Health Impact Assessment Report) describes the Health Impact Assessment (HIA) framework that was designed to assess potential health impacts due to a project on the most sensitive members of the population, such as children, the elderly, and those with compromised or sensitive health conditions (e.g., asthmatics, pregnant women, those with Chronic Obstructive Pulmonary Disease, immunodeficient individuals, etc.). Many of these sensitive members of the population would also be considered in a GBA+, as being potentially disproportionately impacted due to project-related activities.



Hence, through these approaches, and in combination with a GBA+, the HIA provides a broad evaluation of potential health benefits and impacts arising from the Project for potentially affected Indigenous communities and other stakeholders.

The following sections of the EAR/IS describe and assess disproportionate effects on social environment, economic environment, human health, and Indigenous Peoples disaggregated by sex, age, and other community relevant identify factors through the application of GBA+:

- Section 14 – Assessment of Effects on Social Environment;
- Section 15 – Assessment of Effects on Economic Environment;
- Section 17 – Assessment of Effects on Human Health; and
- Section 19 – Assessment of Effects on Aboriginal and Treaty Rights and Interests.

5.2.4 Mitigation and Enhancement Measures

Mitigation measures are means to eliminate, reduce, control or offset the adverse effects of a project, and include restitution for any damage caused by those effects through replacement, restoration or compensation. Mitigation measures are identified and described for each VC and include input from engagement with Indigenous communities and groups, the public, government agencies, and stakeholders. Technically and economically feasible mitigation measures constituting standard practice are considered in the evaluation of project effects. Mitigation can also include VC-specific measures to address VC-specific issues, such as habitat offsetting/compensation, or planned environmental management and response measures. Where applicable, the extent to which technological innovations may help mitigate potential effects is identified.

Proposed mitigation measures are identified in the VC-specific effects assessment sections (Sections 6 to 20) and in the Project Environmental Management Plan as part of a process of adaptive management (Section 4.6). Each VC-specific section includes a summary of potential effects, mitigation and net effects or the equivalent federal term residual effects. **Table 5-4** provides an example for a given VC to summarize potential effects, mitigation and whether a net effect (positive or negative) is predicted to occur. For some VCs (e.g., Economy), the potential effects of the Project are considered positive; therefore, potential or proposed actions identified for positive effects include how potential project benefits may be enhanced (enhancement measures).

The proposed mitigation measures described in the VC-specific effects assessment sections are identified in accordance with the guidance and requirements outlined in Section 20 of the TISG and involve the following overall approach:

- Describing the standard mitigation practices, policies and commitments that constitute proven technically and economically feasible mitigation measures and that are to be applied as part of standard practice regardless of location, as well as any new or innovative mitigation measures being proposed;
- Describing mitigation measures that are specific to each environmental, health, social or economic effect identified;
- Describing mitigation measures proposed by Indigenous Peoples and the consideration of those in the project design;



- Providing an assessment of the likely effectiveness of the proposed technically and economically feasible mitigation measures and describing all relevant uncertainties on the effectiveness of the measures;
- Identifying the party responsible for the implementation of mitigation measures and the system of accountability; and
- Describing how disproportionate effects that were identified in the Gender-based Analysis (GBA+) assessment were used to inform mitigation and enhancement measures.

Table 5-4: Summary of Potential Effects, Mitigation Measures and Predicted Net Effects for (VC Name)

VC Subcomponent	Indicators	Project Phase	Project Component or Activity	Potential Effect	Mitigation Measures	Predicted Net Effect
Sub-component 1						
Sub-component 2						
Sub-component 3						

5.2.4.1 Gender Based Analysis Plus (GBA+) Approach

The TISG requires that the EAR/IS describes how disproportionate effects that were identified in the GBA+ results were used to inform mitigation and enhancement measures.

Sections 14, 15, 17, and 19 include proposed mitigation and enhancement measures to distribute benefits more evenly and manage potential disproportionate adverse and positive effects on social environment, economic environment, human health, and Indigenous Peoples.

As part of a broader mitigation strategy, the proponent commits to implement a Gender Equity and Diversity Policy and Plan in future development phases of the Project to increase opportunities for Indigenous Peoples to obtain and retain employment with the Project and report on how the GBA + has been integrated into the Project’s delivery.

5.2.5 Characterization of Net Effects

The effects assessment considers relevant scientific literature, baseline conditions and other available information (e.g., Indigenous communities and groups, stakeholders and Indigenous Knowledge) in the analysis of potential project -related changes to the VC that may result through one or more mechanisms or pathways. The focus of the effects assessment is on predicted net effects, which are the effects that remain after application of proposed mitigation measures. Potential effects (positive or adverse) that are fully mitigated are not included in the net effects characterization or cumulative effects assessment. Following the analysis of effects pathways and mitigation measures, the predicted net effects are characterized using the following criteria:

- Direction;
- Magnitude;
- Geographic extent;
- Timing;
- Duration;



- Frequency;
- Context;
- Input from Indigenous Peoples;
- Reversibility; and
- Likelihood of occurrence.

The definitions of these criteria, which are further customized in each VC-specific assessment, are outlined in **Table 5-5** as a sample. The criteria used to characterize net effects are derived from the TISG, government departments, ministries and agencies' review of the proponent's Study Plans for each VC, and government guidelines. For some select VCs (e.g., Human Health), the criteria for characterization of net effects may differ from the standard assessment approach with justification provided relative to the predicted net effects. Quantitative measures were developed, where possible, to characterize predicted net effects. Qualitative considerations were used where quantitative measurement was not possible.

Context may also be relevant when describing a net effect on biological, and health and socio-economic VCs. Ecological context relates to the potential for environmental effects to cause disruption of ecological functions in relation to the receiving environment, which may be ecologically fragile with little resilience to imposed stresses, or which may be already adversely affected by human activities.

Socio-economic context is also helpful in understanding the ability of the environment to absorb and adapt to further stresses from the Project. Where relevant, ecological or socio-economic context is discussed in each VC-specific section in the description of net effects, including differential effects as per the required GBA+ for the Project (e.g., are the effects more severe for some groups than others).

Table 5-5: Criteria for Characterization of Predicted Net Effects on (VC name)

Characterization Criteria	Description	Quantitative Measure or Definition of Qualitative Categories
Direction	Direction relates to the value of the effect in relation to the existing conditions.	Positive – Net gain or benefit; effect is desirable. Neutral – No change compared with baseline conditions and trends. Negative – Net loss or adverse effect; effect is undesirable.
Magnitude	Magnitude is the amount of change in measurable parameters or the VC relative to existing conditions.	Negligible – No measurable change. Low – (To be defined by VC). Moderate – (To be defined by VC). High – (To be defined by VC).
Geographic Extent	Geographic extent refers to the spatial area over which a net effect is expected to occur or can be detected within the Project Footprint, Local Study Area and Regional Study Area.	Project Footprint – The effect is confined to the Project Footprint or Project Development Area. Local Study Area – The effect is confined to the Local Study Area. Regional Study Area – The effect extends beyond the Local Study Area boundary, but is confined within the Regional Study Area.
Timing	Timing criteria indicate the timing (e.g., dates or seasons) importance of the net effect.	Defined on a VC-specific basis.



Characterization Criteria	Description	Quantitative Measure or Definition of Qualitative Categories
Duration	Duration is the period of time required until the measurable indicators or the VC returns to its existing (baseline) condition, or the net effect can no longer be measured or otherwise perceived.	<p>Short-term – Net effect restricted to no more than the duration of the construction phase (approximately 5 years).</p> <p>Medium-term – Net effect extends through the Operations Phase of the Project (75-year life cycle).</p> <p>Long-term – Net effect extends beyond the Operations Phase (greater than 75 years).</p> <p>Permanent – Recovery to baseline conditions unlikely.</p>
Frequency	Frequency refers to the rate of occurrence of an effect over the duration of the Project or in a specific phase.	<p>Infrequent – The effect is expected to occur rarely.</p> <p>Frequent – The effect is expected to occur intermittently.</p> <p>Continuous – The effect is expected to occur continually.</p>
Context	Context considers sensitivity and resilience of the VC to project-related change.	Defined on a VC-specific basis and draws on the existing conditions.
Input from Indigenous Peoples	Views of the Indigenous communities and groups in assigning the criteria to be used and in characterizing the effects.	Varies by VC based on input received from Indigenous communities and groups.
Reversibility	Reversibility describes whether a measurable indicator or the VC can return to its existing condition after the project activity ceases.	<p>Reversible – The net effect is likely to be reversed after activity completion and rehabilitation.</p> <p>Irreversible – The net effect is unlikely to be reversed.</p>
Likelihood of Occurrence	Likelihood of occurrence is a measure of the likelihood that an activity will result in an effect.	<p>Unlikely – The effect is not likely to occur.</p> <p>Possible – The effect may occur, but is not likely.</p> <p>Probable – The effect is likely to occur.</p> <p>Certain – The effect will occur.</p>

A summary of the characterization of net effects is provided in tabular form for each VC. A summary example is presented in **Table 5-6**.

Table 5-6: Summary Example of Predicted Net Effects on [VC name]

Predicted Net Effect	Net Effects Characterization									
	Project Phase	Direction	Magnitude	Geographic Extent	Timing	Duration	Frequency	Context	Reversibility	Likelihood of Occurrence
Net Effect 1										
	Destruction/Loss of Fish Habitat:									
Net Effect 2										
	Injury/Death of Fish:									

Note: Refer to **Table 5-5** for definitions of criteria for characterization of net effects



5.2.6 Determination of Significance

For each potential effect, thresholds or standards that determine when a net effect becomes significant are established. An assessment of significance is conducted for those valued components where either an adverse or a positive net effect is anticipated.

Using the VC-specific significance definitions and characterization of predicted net effects stated within each VC section (Sections 6 to 20), the assessment evaluates the significance of these net effects and summarizes the predicted net effects of the Project in a concluding paragraph in each VC section. If a significant net adverse effect or positive net effect is predicted, then the likelihood of this occurrence is also discussed.

The approach for determination of significance follows the Ministry of Natural Resources (MNRF, 2002, amended 2024), *Class Environmental Assessment for Resource Stewardship and Facility Development Projects*, which provides guidance for assessing the significance of potential effects for individual VCs, for a project as a whole, and for alternatives. They include consideration of factors that may be applied in characterizing net effects, as presented in **Section 5.2.5**, and other considerations that should be taken into account (e.g., concerns of stakeholders, Indigenous communities and groups, etc.). In addition, the determination of significance of net effects meets the requirement in the TISG and follows the guidelines and principles under the former *Canadian Environmental Assessment Act*, including:

- The Draft Technical Guidance Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the *Canadian Environmental Assessment Act* (CEA Agency, 2018a); and
- The Operational Policy Statement: Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the *Canadian Environmental Assessment Act*, 2012 (CEA Agency, 2015).

The assessment of significance is applied to each VC for which net effects are predicted. Predicted net adverse effects or net positive effects are classified as significant or not significant (i.e., binary response). The assessment of significance involves the professional judgment of experienced specialists and consideration of feedback received from Indigenous, stakeholders and public consultation. The Project Team is comprised of technical specialists with experience collecting data and assessing natural environmental, and socioeconomic and human health effects for numerous projects in Ontario, and across Canada. The Project Team understands the Project scope, landscape, environmental sensitivities, communities and types of natural environment, socio-economic and health issues commonly encountered across northern Ontario, and those specific to this Project during construction and operations.

Table 5-7 summarizes how significance of predicted net effects was determined for each VC. A qualitative aggregation method is used for determination of significance based on the sequential interaction among the magnitude, geographic extent, and duration criteria for net effects. Other considerations in significance determination include potential management concerns and concerns of Indigenous communities and groups, the public, government agencies, and stakeholders which may require actions such as monitoring, research, or recovery initiatives. Additional details on VC-specific definitions of significance are provided in Sections 6 to 20.



Table 5-7: Definitions of Significant Net Effects for Valued Components

Valued Component or Indigenous Value	Subcomponent	Definition of Significance
Geology, Terrain, and Soils	<ul style="list-style-type: none"> ▪ Geomorphology and geochemistry; ▪ Terrain/Topography; ▪ Soil quality; and ▪ Soil quantity. 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ High in magnitude; ▪ Regional in extent; ▪ Long-term to permanent in duration; ▪ Representing a management concern (net effects alter the sustainability of the VC beyond a manageable level or result in changes that are not in accordance with provincial and federal guidelines); and ▪ Identified as a key concern or interest by Indigenous communities and groups.
Surface Water Resources	<ul style="list-style-type: none"> ▪ Surface water quantity; ▪ Surface water quality; and ▪ Sediment quality. 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ Moderate to high in magnitude; ▪ Regional in extent; ▪ Long-term to permanent in duration; ▪ Representing a management concern (net effects alter the sustainability of the VC beyond a manageable level or result in changes that are not in accordance with provincial and federal guidelines); and ▪ Identified as a key concern or interest by Indigenous communities and groups.
Groundwater Resources	<ul style="list-style-type: none"> ▪ Groundwater quantity; and ▪ Groundwater quality. 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ Moderate to high in magnitude; ▪ Regional in extent; ▪ Long-term to permanent in duration; ▪ Representing a management concern (net effects alter the sustainability of the VC beyond a manageable level or result in changes that are not in accordance with provincial and federal guidelines); and ▪ Identified as a key concern or interest by Indigenous communities and groups.
Atmospheric Environment	<ul style="list-style-type: none"> ▪ Air quality; ▪ Greenhouse gases; ▪ Noise and vibration; and ▪ Lighting. 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ High in magnitude; ▪ Local or regional in extent; ▪ Long-term to permanent in duration; ▪ Representing a management concern (net effects alter the sustainability of the VC beyond a manageable level or result in changes that are not in accordance with provincial and federal guidelines); and ▪ Identified as a key concern or interest by Indigenous communities and groups.

Valued Component or Indigenous Value	Subcomponent	Definition of Significance
Fish and Fish Habitat	<ul style="list-style-type: none"> ▪ Fish habitat quantity and quality; ▪ Fish populations; ▪ Key species: <ul style="list-style-type: none"> ▫ Brook Trout; ▫ Lake Whitefish; ▫ Chain Pickerel; ▫ Yellow Perch; ▫ Cisco; ▫ Burbot; ▫ Longnose Sucker; ▫ White sucker; ▫ Lake Chub; ▫ Northern Pike; ▫ Walleye; and ▫ Lake Sturgeon (see Species at Risk). 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ Moderate to high in magnitude; ▪ Regional in extent; ▪ Long-term to permanent in duration; ▪ Representing a management concern (net effects alter the sustainability of the VC beyond a manageable level or result in changes that are not in accordance with provincial and federal guidelines); ▪ Identified as a key concern or interest by Indigenous communities and groups; and ▪ Effects to fish and fish habitat would cause permanent high magnitude adverse changes to survival or reproduction at a population level such that it can no longer self-sustain itself.
Vegetation and Wetlands	<ul style="list-style-type: none"> ▪ Vegetation communities, species and biodiversity; ▪ Wetland functions; ▪ Plant species and communities at risk, of conservation concern, or locally underrepresented; and ▪ Plant species and communities of traditional importance to Indigenous Peoples. 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ High in magnitude; ▪ Local or regional in extent; ▪ Long-term to permanent in duration; ▪ Representing a management concern (net effects alter the sustainability of the VC beyond a manageable level or result in changes that are not in accordance with provincial and federal guidelines); ▪ Identified as a key concern or interest by Indigenous communities and groups; and ▪ Effects to vegetation and wetlands would cause high magnitude changes to biodiversity and ecosystem function of ecosystem communities to the point where they can no longer self-sustain themselves.
Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> ▪ Wildlife habitat including identified Significant Wildlife Habitat; ▪ Wildlife populations; ▪ Key species and species groups: <ul style="list-style-type: none"> ▫ Moose; ▫ Furbearers; ▫ Bats; ▫ Migratory Songbirds (Forest and Wetland); ▫ Waterfowl; ▫ Shorebirds; 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ Moderate to high in magnitude; ▪ Local or regional in extent; ▪ Long-term to permanent in duration; ▪ Representing a management concern (net effects alter the sustainability of the VC beyond a manageable level or result in changes that are not in accordance with provincial and federal guidelines); ▪ Identified as a key concern or interest by Indigenous communities and groups; and ▪ Effects to wildlife and wildlife habitat would cause permanent high magnitude adverse changes to survival or reproduction at a



Valued Component or Indigenous Value	Subcomponent	Definition of Significance
	<ul style="list-style-type: none"> ▫ Raptors; and ▫ Herpetofauna (Reptiles and Amphibians). 	<p>population level such that it can no longer self-sustain itself.</p>
Species at Risk (SAR)	<ul style="list-style-type: none"> ▪ Terrestrial SAR populations; ▪ Terrestrial SAR habitat; ▪ SAR Fish habitat quantity and quality; and ▪ SAR Fish populations. <p>Terrestrial SAR:</p> <ul style="list-style-type: none"> ▪ Caribou (Boreal Population); ▪ Wolverine; ▪ Bats: <ul style="list-style-type: none"> ▫ Northern Myotis; and ▫ Little Brown Myotis. ▪ Upland Forest Songbirds: <ul style="list-style-type: none"> ▫ Evening Grosbeak. ▪ Wetland Songbirds: <ul style="list-style-type: none"> ▫ Olive-sided Flycatcher; and ▫ Rusty Blackbird. ▪ Shorebirds: <ul style="list-style-type: none"> ▫ Lesser Yellow Legs. ▪ Nightjars: <ul style="list-style-type: none"> ▫ Common Nighthawk. ▪ Raptors: <ul style="list-style-type: none"> ▫ Short-eared Owl; and ▫ Bald Eagle. <p>Aquatic SAR:</p> <ul style="list-style-type: none"> ▪ Lake Sturgeon (Hudson Bay – James Bay population). 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ Moderate to high in magnitude; ▪ Local or regional in extent; ▪ Long-term to permanent in duration; ▪ Representing a management concern (net effects alter the sustainability of the VC beyond a manageable level or result in changes that are not in accordance with provincial and federal guidelines); ▪ Identified as a key concern or interest by Indigenous communities and groups; and ▪ Effects to a species at risk and their habitat would cause permanent high magnitude adverse changes to survival or reproduction at a population level such that it can no longer self-sustain itself.
Social Environment	<ul style="list-style-type: none"> ▪ Population and demography; ▪ Housing and temporary accommodations; ▪ Community services; ▪ Education, training and traditional learning; ▪ Emergency and protective services; ▪ Community Infrastructure; and ▪ Community well-being and safety. 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ Moderate to high in magnitude; ▪ Local or regional in extent; ▪ Medium to long-term in duration; ▪ Effect could require management and represents an impact on community well being or safety. Adverse net effects may be considered significant even with a low likelihood of occurrence; and ▪ Identified as a key concern or interest by Indigenous communities and groups.
Economic Environment	<ul style="list-style-type: none"> ▪ Labour Force, employment and income; ▪ Overall economy; ▪ Business environment; and 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ Moderate to High in magnitude; ▪ Local or regional in extent;



Valued Component or Indigenous Value	Subcomponent	Definition of Significance
	<ul style="list-style-type: none"> ▪ Public and Indigenous community finance. 	<ul style="list-style-type: none"> ▪ Medium to long-term in duration; ▪ Representing a management concern (net effects alter the sustainability of the VC beyond a manageable level); and ▪ Identified as a key concern or interest by Indigenous communities and groups.
Non-Traditional Land and Resource Use	<ul style="list-style-type: none"> ▪ Land Use Compatibility and Stewardship; ▪ Commercial and Industrial; ▪ Recreation and Tourism (i.e., camps, trails, waterways, etc.); ▪ Provincial and Federal Parks, Ontario ANSI (Areas of Natural and Scientific Interest) and Other Protected Areas; and ▪ Transportation. 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ Moderate to high in magnitude; ▪ Local or regional in extent; ▪ Long-term to permanent in duration; ▪ Representing a management concern (net effects alter the sustainability of the VC beyond a manageable level or result in changes that are not in accordance with provincial and federal guidelines); and ▪ Identified as a key concern or interest by Indigenous communities and groups.
Human Health	<p>Determinants of health:</p> <ul style="list-style-type: none"> ▪ Structural (or Level 3) determinants of health: structural and equity factors, including racism and colonialism; ▪ Intermediate (or Level 2) determinants of health: physical environment, education, service access, and social, cultural and economic factors; and ▪ Proximal (or Level 1) determinants of health: health behaviours including substance use, and diet, including availability of traditional foods (also referred to as “country foods” in this EAR/IS). 	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ Moderate to high in magnitude; ▪ Local or regional in extent; ▪ Medium to long-term in duration; ▪ Effect could require management and represents a significant impact on existing human health conditions. Adverse net effects may be considered significant even with a low likelihood of occurrence; and ▪ Identified as a key concern or interest by Indigenous communities and groups.
Visual Environment	Visual landscape quality.	<p>A predicted net effect would be considered significant if it is assessed as:</p> <ul style="list-style-type: none"> ▪ High in magnitude; ▪ Local or regional in extent; ▪ Long-term to permanent in duration; and ▪ Identified as a key concern or interest by Indigenous communities and groups.
Indigenous Peoples and Aboriginal and/or Treaty Rights	<p>Indigenous Peoples’ values and Aboriginal and Treaty Rights:</p> <ul style="list-style-type: none"> ▪ Indigenous current and historical use of lands and resources for traditional purposes; 	<p>An effect on the rights of Indigenous Peoples would be considered high in severity if it is assessed as:</p> <ul style="list-style-type: none"> ▪ Likely to be major in scale, permanent/long-term, frequent, possibly irreversible and over a large spatial extent or within an area of exclusive/preferred use;



Valued Component or Indigenous Value	Subcomponent	Definition of Significance
	<ul style="list-style-type: none"> ▪ Cultural continuity; and ▪ Aboriginal and Treaty Rights: <ul style="list-style-type: none"> ▫ Changes to rights related to current and historical use of lands and resources for traditional purposes and activities; ▫ Changes to rights related to cultural continuity; ▫ Socio-economic, health and well-being rights; and ▫ Self-determination and self-governance rights. 	<ul style="list-style-type: none"> ▪ Cultural well-being is disrupted, impeded or removed; project interacts with only area where a right may be exercised and many historic, existing or proposed developments and/or disturbance; ▪ Decision-making associated with governance and title adversely affected; ▪ Subgroups will be disproportionately impacted by the project and experience no to little benefit; ▪ Mitigation is unable to fully address impacts such that the practice of the right is substantively diminished or lost.
Cultural Heritage Resources	<ul style="list-style-type: none"> ▪ Built heritage resources; ▪ Cultural Heritage Landscapes; and ▪ Archaeological resources. 	A predicted net effect would be considered significant if it is assessed as representing a management concern (net effects result in changes that are not in accordance with provincial and federal guidelines).

5.2.7 Assessment of Cumulative Effects

For the cumulative effects assessment, the project net (adverse) effects that are likely to interact cumulatively with the net environmental, health, social or economic effects from other physical activities (past, present and reasonably foreseeable) are identified and assessed. The Project's contribution to the cumulative effect is then analyzed. In the context of the EA/IA, cumulative effects are the predicted net effects from the Project that overlap temporally and spatially with past, present and reasonably foreseeable physical activities, as well as within activities of the Project itself from multiple emissions and discharges (e.g., simultaneous operations) to understand synergistic or additive effects. Cumulative effects may result if:

- The Project causes direct net adverse effects to a VC, following mitigation with technically and economically feasible measures; and
- The same VC may be affected by other past, present and future physical activities.

The approach used for conducting the cumulative effects assessment for the Project is informed by the requirements in Section 22 of the federal TISG for the Project, in Section 8.1 of the provincial approved ToR, and engagement, and consultation activities to date. As prescribed in the TISG, the proponent is to use the document entitled *Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012, Interim Technical Guidance* (March 2018, Version 2) until the Impact Assessment Agency of Canada releases Technical Guidance under the IA Act and is referred to as the "Interim Cumulative Effects Assessment Guidance Document".

The Interim Cumulative Effects Assessment Guidance Document outlines a VC-centred approach to cumulative effects assessment, and provides methodological options, considerations, and documentation outcomes. It notes that each environmental assessment of project tasks should "take into account any cumulative environmental effects that are likely to result from the project in combination with the environmental effects of other physical activities that have been or will be carried out" (CEA Agency, 2018b).



The cumulative effects assessment for the Project is structured according to the five-step framework outlined in the Interim Cumulative Effects Assessment Guidance Document. These steps include:

1. **Scoping**, including identifying VCs where net environmental effects are expected, determining the spatial and temporal boundaries applicable to the VCs, and identifying other physical activities which may interact with the project net effects within the identified boundaries.
2. **Analysis** to determine how the physical activities/projects identified in the preceding (scoping) stage affect the VCs carried forward from the Scoping within the determined spatial and temporal boundaries.
3. **Mitigation** to eliminate, reduce or control adverse net effects.
4. **Determination of Significance** of any remaining adverse net effects following mitigation.
5. **Follow-up programs**, as required, to address cumulative effects, verify the accuracy of the environmental assessment and determine effectiveness of the mitigation measures.

This approach to the cumulative effects assessment is consistent with the general practice to first examine the project-specific effects of the Project in isolation, recognizing the need to incorporate a pathways of effects approach examining the linkages between project VCs, before moving to the consideration of other physical activities. This approach allows the proponent to first consider mitigation measures for the Project and determine if there are net effects after the mitigation measures have been considered from each of the VC-specific assessments. Where the predicted adverse net effects for a VC are characterized as having a moderate to high magnitude and likelihood of occurrence of “probable” or “certain”, or having a low magnitude with a geographical extent of the VC RSA and likelihood of occurrence of “probable” or “certain”, the VC will be carried forward to the cumulative effects assessment. Therefore, VCs where project environment interactions are assessed as having no net effects, positive net effects, negligible net effects or net effects assessed with a likelihood of occurrence as “unlikely” or “possible” are not carried forward to the cumulative effects assessment.

In accordance with Section 22 of the TISG, the cumulative effects assessment considers the cumulative effects on Indigenous Peoples and the exercise of their Aboriginal and Treaty rights, for all potentially affected groups, including those that may experience the effects of increased access to the region by mineral development and other road infrastructure projects. Accordingly, inputs from potentially affected Indigenous communities and groups are integrated into the cumulative effects assessment.

The TISG (Section 22) identifies the projects or activities that are to be considered in the cumulative effects assessment. This project and activity inclusion list (refer to Section 21) presents known past, present and reasonably foreseeable future physical activities that could overlap spatially and temporally with the net environmental, health, social or economic effects of the Project. Section 21 evaluates the net effects of the Project (as assessed in Sections 6 to 20) in the context of net effects from past, present and certain or reasonably foreseeable future physical activities to determine the potential for cumulative effects. Since not all reasonably foreseeable future physical activities are likely to proceed, the cumulative effects assessment is considered conservative.



5.2.8 Prediction Confidence in the Assessment

Prediction confidence refers to the degree of certainty in the net effects/cumulative effects prediction and associated determination of significance. The EAR/IS deals with predictions of future circumstances, and predicts interactions of the Project within complex physical, biological, socio-economic and cultural environments. Therefore, the effects predictions vary in their level of certainty, which is influenced by factors such as:

- Availability of data relevant to the environment in the study areas;
- Variability and resiliency of the environment and Indigenous communities and groups;
- Degree of scientific understanding of project-criteria interactions and criteria inter-relationships;
- Climate change; and
- Limitations and constraints to analytical techniques used (e.g., modelling for wildlife, noise, air, climate change).

The level of certainty is considered during the EA/IA. Discussion in each VC-specific assessment section is provided on how uncertainty was addressed to increase the level of confidence so that net effects/cumulative effects following implementation of the Project will not be worse than predicted, such as building a conservative approach to the analysis and assessment.

5.2.9 Follow-up and Compliance Monitoring Programs

As per Section 22 (1) (k) of the IA Act, the TISG and the ToR, a follow-up program is required to verify the accuracy of the effects assessment, evaluate the effectiveness of mitigation measures, as well as to conduct compliance monitoring of the obligations or commitments made during the EA/IA process. Monitoring and follow-up plans are proposed for each VC (Sections 6 to 20), where applicable, and summarized in Section 22 of the EAR/IS. The proposed follow-up and compliance monitoring programs identified as part of the EA/IA will be used to:

- Verify the accuracy of effect predictions;
- Measure compliance with applicable licences, permits, authorizations and other approvals;
- Confirm adherence to general and specific mitigation measures;
- Assess the effectiveness of mitigation and management measures;
- Identify project effects requiring further mitigation; and
- Confirm fulfilment of all obligations and/or commitments made during EA/IA process, as documented in the EAR/IS, including conditions of approvals under the EAA.

A preliminary framework and scope for the follow-up and compliance monitoring programs is described in Section 22. The approach includes two types of monitoring:

- Effects monitoring; and
- Compliance monitoring.

Effects monitoring involves activities designed to verify the accuracy of predicted effects and the effectiveness of mitigation measures. Information gathered from effects monitoring activities will be used to determine whether additional actions are necessary (adaptive management) to address unanticipated outcomes.



Compliance monitoring involves the assessment and evaluation of whether the Project has been constructed, implemented and/or operated in accordance with commitments made during the EA/IA process, and any conditions of the EA and IA approvals, and other approvals required to implement the Project. Should the Project be approved under the IA Act and EA Act, the proponent will conduct compliance monitoring and reporting of the commitments made in the EAR/IS and that have been incorporated into the Project implementation. Consistent with commitments made in the EAR/IS, it is expected that Webequie First Nation will continue engagement and consultation during the subsequent construction and operations phases of the Project with Indigenous communities and groups and stakeholders that are potentially affected by the Project and/or may have interest in the Project. Appropriate program additions and modifications may be adapted based on outcomes from the engagement and consultation.

It is anticipated that Webequie First Nation community members will be actively involved in the implementation of the effects and compliance monitoring programs for the Project. Development of follow-up and monitoring programs for the Project will include consideration of potential disproportionate effects identified by GBA+ approach applied in the assessment of social, economic, and health effects (Sections 14, 15, and 17, respectively), and in the assessment of potential impacts on the Exercise of Aboriginal and Treaty rights (Section 19).

5.3 Assessment of Other Effects

The EA/IS provides the following other assessments as required in TISG Sections 23.1, 23.2, 24, and 25:

- **Assessment of Potential Accidents or Malfunctions** – The assessment of accidents and malfunctions includes descriptions of the events that may occur outside the normal planned function or activity of the Project (e.g., accidental spills and vehicle collisions), and mitigation and contingency plans to eliminate or reduce the risks of such events.
- **Effects of the Environment on the Project** – Effects of the environment (e.g., extreme weather and effects of climate change) on the Project are considered, as required under the IA Act and the TISG for the Project and to satisfy Ministry of Environment, Conservation and Parks (MECP) expectations for inclusion of such considerations under the EAA.
- **Assessment of Project Effects in Terms of Canada's Environmental Obligations and Commitments** – For example how the Project's effects (including contribution to cumulative effects) may contribute to Canada's ability to meet its obligations related to climate change and biodiversity, such as net-zero emissions commitments under *Canadian Net-Zero Emissions Accountability Act* (2021) the Convention on Biological Diversity and supporting national framework (e.g., Canadian Biodiversity Strategy, Canada's Biodiversity Outcomes Framework and current Biodiversity Goals and Targets for Canada); and, legislation that supports the implementation of Canada's biodiversity commitments, including the *Species at Risk Act* (2002), and the *Canada Wildlife Act* (1985).
- **Assessment of the Project's Contribution to Sustainability** – The Project's contribution to sustainability is characterized in terms of sustainability principles, including those defined by Indigenous communities and groups, such as "Seven Generations Teachings" and "Seven Generation Stewardship".



5.3.1 Assessment of Accidents and Malfunctions

Section 22 (1) (a) of the IA Act and the TISG require that the EA/IA considers the effects of accidents or malfunctions that might occur in connection with the Project. The potential for and consequence (i.e., adverse effects) of accidents or malfunctions to occur over the life of the Project were assessed in the EAR/IS (Section 23). The assessment provides an initial basis for development of contingency planning and what will eventually be incorporated into the Project's emergency and contingency response and communication plans. Details on the types of accident or malfunction events considered are discussed in Section 23. This section also describes the Hazard Identification and Risk Assessment of accidents and malfunctions across all phases of the Project, as well as their potential effects, and presents preliminary emergency measures and systems in response to technological malfunctions, human error (e.g., spills) or exceptional natural events (e.g., flooding, forest fire) that could cause major effects.

Potential effects on VCs due to accidents or malfunctions are assessed in a similar fashion to predicted effects of the Project on VCs. Potential effects on VCs due to an accident or malfunction event are identified; mitigation, safety and preventive measures are described (i.e., incident avoidance measures, design safeguards); and effects are characterized using the same rating terms defined for characterizing predicted net effects of the Project on respective VCs, including the spatial and temporal boundaries considered for the effects associated with accidents and malfunctions. The significance of the potential effects on VCs due to an accident or malfunction event is then determined using the same criteria used for predicted net effects of the Project on respective VCs.

5.3.2 Effects of the Environment on the Project

Section 22.1 (j) of the IA Act and the TISG require consideration of changes to the Project that may be caused by the environment. Potential effects that may occur as a result of the environment acting on the Project are therefore assessed in the EAR/IS (Section 24). Potential environmental natural hazards may include severe and/or extreme weather conditions and external events (e.g., earthquakes, flooding, drought, ice events, permafrost conditions, landslides, erosion, fire). The influence that these environmental forces and hazards may have on the Project are predicted and described and the mitigation measures to be taken to reduce or eliminate potential adverse effects are identified. This includes, but is not limited to, identifying the Project's sensitivities/vulnerabilities to change in climate, describing climate resilience of the Project and how climate change effects have been incorporated into the project design (e.g., water crossings), and describing any identified trends in meteorological events, weather patterns, or physical changes to the environment that are anticipated to result from climate change (e.g., changes to annual freeze-thaw cycles, water levels and spring freshet).

5.3.3 Effects of the Project in the Context of Canada's Environmental Obligations

Section 22.1 (i) of the IA Act and the TISG requires a description of the extent to which the effects of the Project hinder or contribute to the Government of Canada's ability to meet its environmental obligations, and secondly its commitments in respect to climate change. The TISG specifically identifies the federal environmental obligations that are to be considered, which include the following:

- Convention on Biological Diversity and Canada's supporting national framework (e.g., Canadian Biodiversity Strategy, Canada's Biodiversity Outcomes Framework and current Biodiversity Goals and Targets for Canada); and legislation that supports the implementation of Canada's biodiversity



commitments, including the *Species at Risk Act* (2002), and the *Canada Wildlife Act* (1985), as well as supporting guidance.

- Recovery Strategies and Action Plans developed under the *Species at Risk Act* (SARA) for all species at risk potentially affected by the Project. Of particular importance under SARA for this Project is the “2019 Proposed Amended Recovery Strategy for Woodland Caribou (*Rangifer tarandus* caribou), Boreal Population, in Canada” Far North range, and smaller ranges within that range, as identified by the Province of Ontario.
- Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar), as implemented in part through the Federal Policy on Wetland Conservation (1991) and supporting guidance, such as the North American Waterfowl Management Plan.
- Convention for the Protection of Migratory Birds in the United States and Canada, as implemented in part through the *Migratory Birds Convention Act* (1994) and supporting guidance on conservation objectives arising from Bird Conservation Region Strategies.
- Government of Canada’s commitment to achieve net-zero greenhouse gases (GHG) emissions by 2050 as contained in the *Canadian Net-Zero Emissions Accountability Act* (2021).

Section 25 of EAR/IS presents how the Project’s effects (including contribution to cumulative effects) may contribute to Canada’s ability to meet its obligations (e.g., related to biodiversity, net-zero-emissions).

In addition to presenting the proponent’s view, the EAR/IS has made efforts to include how Indigenous communities and groups and/or Indigenous Knowledge was incorporated in assessing whether the Project presents a contribution or a hindrance to meeting these obligations/commitments.

5.3.4 Project’s Contribution to Sustainability

Section 22.1 (h) of the IA Act and the TISG requires the proponent to characterize the Project’s contribution to sustainability. As defined in the IA Act, sustainability “means the ability to protect the environment, contribute to the social and economic well-being of the people of Canada and preserve their health in a manner that benefits present and future generations”.

As part of the EA/IA process, Indigenous communities and groups, the public, government agencies, and stakeholders have been engaged to identify key issues of importance to them, as described in Section 2 (Engagement and Consultation Summary). This engagement has helped identify the elements to inform the assessment of the Project’s contribution to sustainability, and it is recognized that sustainability is contextual and project dependent; and as such, it may be defined differently by communities, or even groups within communities. The approach to considering the Project’s contribution to sustainability involves identifying and scoping key VCs for their contribution to sustainability, and has considered VCs that:

- Could experience long-term effects, including how those effects could change over time, and how they could affect future generations;
- May interact with other VCs;
- May interact with potential effects of the Project; and/or
- May interact with project activities.

Section 26 characterizes the Project’s contribution to sustainability, including contribution to “sustainability” as defined by Indigenous communities and groups, such as “Seven Generations Teachings” and “Seven Generation Stewardship” (e.g., expectations as to how many generations it will



take for effects to become fully apparent and for a VC to return to baseline conditions; resilience of the VC; and whether a VC is expected to recover from effects). Based on the analysis of potential effects of the Project, the following four Sustainability Principles have been considered, as identified in the Agency's guidance document (*Guidance: Considering the Extent to which a Project Contributes to Sustainability, December 2021*) and the TISG:

- Principle 1 – Consider the interconnectedness and interdependence of human-ecological systems;
- Principle 2 – Consider the well-being of present and future generations;
- Principle 3 – Maximize overall positive benefits and minimize adverse effects of the designated project; and
- Principle 4 – Apply the precautionary principle and consider uncertainty and risk of irreversible harm.

The description of the Project's contribution to sustainability examines how the sustainability principles were applied to the Project and draws conclusions from the analysis.

5.4 Summary of the Assessment

In accordance with the TISG and the *Code of Practice: Preparing and Reviewing Environmental Assessments in Ontario* (MOE, 2014), a summary of the EAR/IS for the Project has been prepared. Section 27 of the EAR/IS provides a summary of the following:

- Potential Project-related environmental, health, social and economic effects;
- Potential adverse effects on the exercise of rights of Indigenous Peoples;
- Proposed mitigation measures, net effects and follow-up commitments; and
- Comments from Indigenous communities and groups, the public, government agencies, and stakeholders.

The summary of the final EAR/IS will also be prepared as a stand-alone plain language summary in both of Canada's official languages (French and English).

5.4.1 Evaluate the Advantages and Disadvantages

The EA/IA planning process consists of a systematic evaluation of the potential effects of alternatives and weighing the advantages and disadvantages of proceeding with the proposed Project. Under subsections 6(2)(d) of the Ontario EAA, an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking, and the alternatives to the undertaking must be included in the EA. However, the provincial EA for the Project is a "focused EA", in accordance with the Project-specific ToR and includes an assessment of the "alternative methods" and the "do nothing" alternative; but does not include an assessment of "alternatives to" the Project, as this analysis was completed during the ToR phase. However, the analysis of "alternatives to" the Project is documented in the EAR/IS (Section 3) for reference and to fulfil requirements of the TISG.

Following the determination of significance of net effects, the evaluation applied a trade-off process in which the advantages and disadvantages to the environment of the alternative courses of action were weighed in terms of their effects, both positive and negative, on the environment. In keeping with the requirements of the focused provincial EA, based on the systematic evaluation of the potential effects, a qualitative comparison of the project alternatives (i.e., "Do Nothing/No Action" versus "Proceeding with



the Project”) was completed. A summary of the overall advantages and disadvantages of the Project is provided in Section 27 with an overall conclusion as to whether the net effects of the Project are acceptable, based on the balanced assessment against all of the criteria and the results of the net effects assessment process.

5.5 References

- Canadian Environmental Assessment (CEA) Agency. 2015. Operational Policy Statement: Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian *Environmental Assessment Act*, 2012. Available at: <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/determining-whether-designated-project-is-likely-cause-significant-adverse-environmental-effects-under-ceaa-2012.html>
- Canadian Environmental Assessment (CEA) Agency. 2018a. Draft Technical Guidance Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian *Environmental Assessment Act*. Available at: <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/determining-project-cause-significant-environmental-effects-ceaa2012.html>
- Canadian Environmental Assessment (CEA) Agency. 2018b. Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012, Interim Technical Guidance (March 2018, Version 2). Available at <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/assessing-cumulative-environmental-effects-ceaa2012.html>
- Garvin, T., Nelson, S., Ellehoj, E., Redmond, B. 2001. A guide to conducting a traditional knowledge and land use study. Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre, Edmonton, Alberta. Retrieved May 3, 2023. Available: Natural Resources Canada (nrcan.gc.ca)
- Impact Assessment Agency of Canada (IAAC). 2020. Webequie Supply Road Tailored Impact Statement Guidelines. February 2020.
- Impact Assessment Agency of Canada (IAAC). 2021. Guidance: Considering the Extent to which a Project Contributes to Sustainability. Available at: <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/guidance-considering-extent-project-contributes-sustainability.html>
- Impact Assessment Agency of Canada (IAAC). 2022. Practitioner’s Guide to Federal Impact Assessments. Available at: <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act.html>
- Ministry of Environment (MOE). 2014. Code of Practice: Preparing and Reviewing Environmental Assessments in Ontario.
- Ministry of Natural Resources and Forestry (MNRF). 2002. Class Environmental Assessment for Resource Stewardship and Facility Development Projects.
- Webequie First Nation. 2020. Webequie Supply Road Environmental Assessment Terms of Reference. August 2020.



AtkinsRéalis



AtkinsRéalis

191 The West Mall
Toronto, ON M9C 5L6
Canada
416.252.5315

atkinsrealis.com

© AtkinsRéalis except where stated otherwise