



Niagara Region

Niagara Escarpment Crossing
Comprehensive Environmental
Assessment
Proposed Terms of Reference

Appendix J
Natural Heritage Work Plan

October 2024

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1 Introduction

This document outlines the proposed work plan that will be carried out during the Niagara Escarpment Crossing Environmental Assessment (EA) to generate a more detailed description and understanding of the environment from a natural heritage perspective. Further, this document describes how that information will be used to assess the effects of the alternatives and proposed project on the environment through evaluation criteria and indicators. This work plan forms **Appendix J** to the proposed Niagara Escarpment Crossing Comprehensive EA Terms of Reference (ToR) and should be read in conjunction with it.

The ToR presently provides a preliminary description of the environment to gain a general understanding of the potential effects that should be examined in the Niagara Escarpment Crossing EA based on the range of alternatives to the project currently anticipated. This description reflects all components included within the Ontario *Environmental Assessment Act* (EA Act) definition of the environment: natural, social, built, economic, and cultural.

Several investigative studies are proposed as part of the Niagara Escarpment Crossing EA to expand on this preliminary description, including, but not limited to the following:

- Air Quality
- Agricultural
- Archaeology
- Built Heritage and Cultural Heritage Landscapes
- Contaminated Property
- Groundwater
- Land Use
- Natural Heritage
- Noise and Vibration
- Surface Water
- Visual Impact

The details associated with the natural heritage investigation are provided in this document while details of the other investigative studies are provided as separate work plans. In addition to the investigative studies, the proposed ToR includes three other work plans: Traffic, Operations, and Safety, Transportation Planning and Engineering, and Financial all of which are included as separate appendices.

2 Establishment of Natural Heritage Conditions

2.1 Confirmation of the Preliminary Study Area

The preliminary study area provided in the ToR will be utilized as a starting point for establishing existing and future environmental conditions (**Figure 2-1**). This preliminary study area will be finalized during preparation of the Niagara Escarpment Crossing EA when more detailed information has been obtained, the alternatives to the project have been confirmed, and the potential environmental effects are better understood.

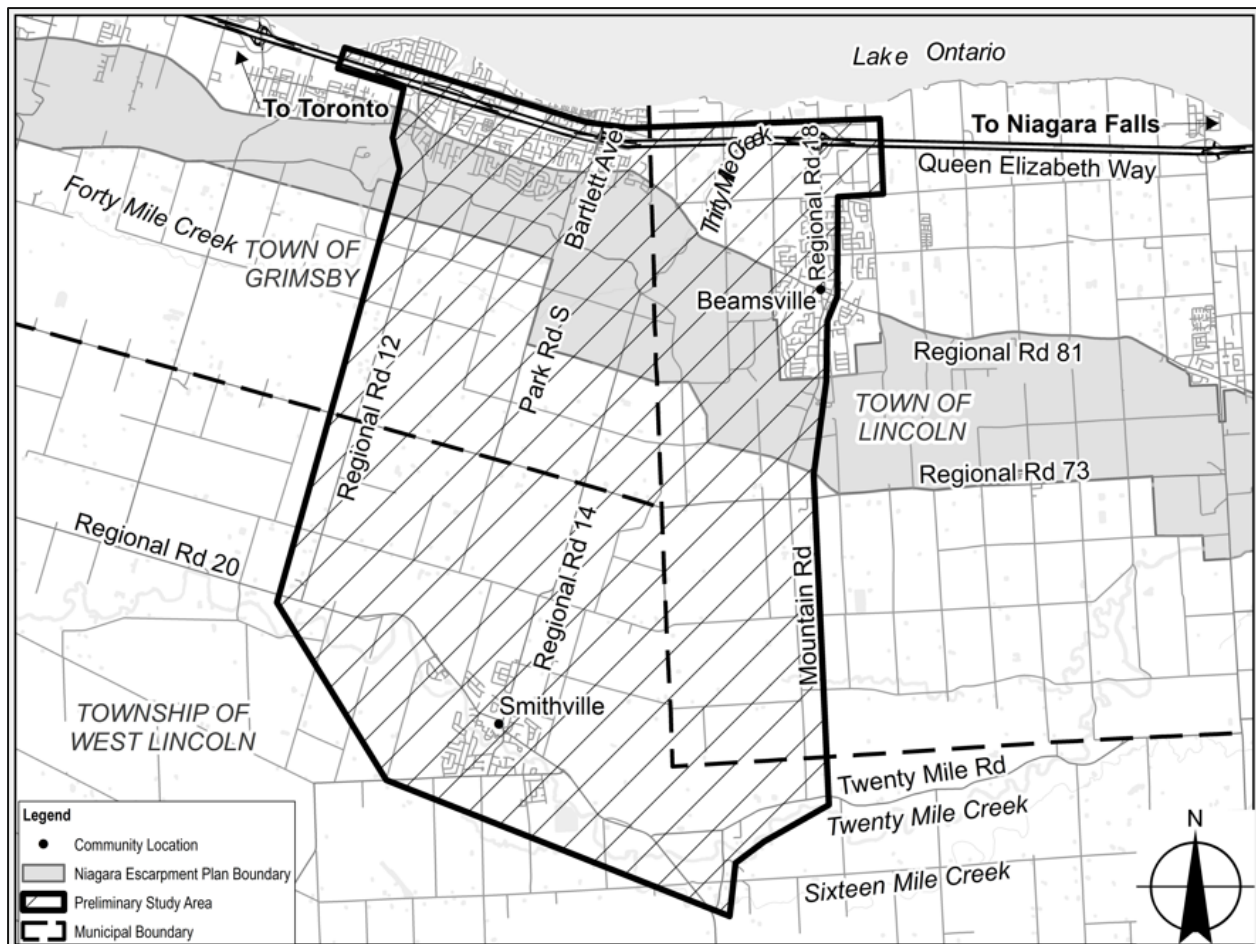


Figure 2-1: Preliminary Study Area

2.2 Review of Available Existing Information Sources

Available existing sources of information will be collected and reviewed to determine existing and future environmental conditions, including any data gaps that need to be addressed through subsequent work (e.g., field investigations, modeling, etc.). Presently, the list of existing information sources that will be collected and reviewed as part to the proposed Natural Heritage Work Plan includes, but may not be limited to, the following:

- Ministry of Environment Conservation and Parks (MECP): Species at Risk (SAR) records for the study area.
- Ministry of Natural Resources and Forestry (MNRF): Natural Heritage Features data layers from Land Information Ontario (LIO) and the Natural Heritage Information Centre (NHIC) database, and Aquatic Resource Area (ARA) data.
- Niagara Peninsula Conservation Authority (NPCA): Applicable regulations and policies, regulated areas, Natural Areas Inventory (2006 – 2009), natural heritage data and species records for the preliminary study area.
- Fisheries and Oceans Canada (DFO): Aquatic SAR Map.
- Town of Grimsby (2012), Town of West Lincoln (2021), Town of Lincoln (2014), Niagara Region (2022) Official Plans: land use designations, schedules, applicable bylaws, and any associated online mapping.
- Provincial Policy Statement (PPS, 2020): Natural Heritage Policies.
- Growth Plan for the Greater Golden Horseshoe (2020): land use designations, schedules.
- Ontario Breeding Bird Atlas: breeding bird data that includes the preliminary study area.
- Ontario Butterfly Atlas: species records that includes the preliminary study area.
- Ontario Reptile and Amphibian Atlas: species records that includes the preliminary study area.
- E-Bird: species records for SAR or locally rare and general checklists submitted for the preliminary study area.
- Twenty Mile Creek Watershed Plan (NPCA, 2006).
- Aerial / satellite imagery

2.3 Proposed Field Investigations

Field investigations are proposed to supplement and enhance available existing sources of information so that additional data is generated to assess each alternative (i.e., identifying potential environmental effects, developing appropriate impact management measures for addressing potential adverse environmental effects, and describing net effects). The need for field investigations will be based on the level of detail associated with the existing information sources collected and reviewed, accessibility of the final study area, and comments received from review agencies, Indigenous Communities, and the public.

The need for an increased level of detail and collection of field data is expected as the Niagara Escarpment Crossing EA progresses. While the assessment of alternative(s) to the project can be completed based on existing source data, the assessment of alternative methods of carrying out the project will be based on more site-specific information generated through subsequent work (e.g., field investigations, modeling, etc.).

The following field investigations are currently proposed as part of the Natural Heritage Work Plan:

- Ecological land classification (ELC) system mapping and botanical inventories (including validation of Natural Areas Inventory information, as available).
- Plant surveys, including species of conservation concern, invasive species, and plants important to Indigenous Communities (identified through the Draft Plant List of species that may be of interest and importance to the Six Nations of the Grand River).
- Terrestrial SAR surveys including butternut (*Juglans cinerea*), American chestnut (*Castanea dentata*) and black ash (*Fraxinus nigra*) presence.
- Significant wildlife habitat (SWH) candidacy assessments.
- General wildlife and habitat feature surveys, incidental observations.
- Wildlife species important to Indigenous Communities monitoring (i.e., deer, rabbits, and other mammals) through the deployment of wildlife trail cameras in strategic locations.
- Breeding bird surveys for species protected by the *Migratory Birds Convention Act* (MBCA).

- Amphibian surveys.
- Aquatic habitat assessments.
- Fish community surveys (qualitative) – preliminary assessments utilizing eDNA metabarcoding to identify fish-bearing waterbodies.
- Headwater drainage feature assessments (HDFAs).
- SAR Screening.

As part of the carrying out the field investigations, the Region would extend the opportunity to interested Indigenous Communities for their participation in the field work.

Documentation

The results of reviewing available existing information sources and the proposed field investigations will be documented in a Natural Heritage Baseline Conditions Report.

3 Assessment of the Alternatives

3.1 Alternatives To the Project

Following confirmation of the preliminary list of alternatives to the project, they will be assessed and comparatively evaluated leading to a recommended alternative(s) to the project. The recommended alternative(s) will be presented to review agencies, Indigenous Communities, and the public for a defined period to receive comments, following which a preferred alternative(s) will be identified. The assessment of the alternatives to the project (through the application of evaluation criteria) will be based on available existing information sources contained in the Baseline Conditions Reports.

3.1.1 Preliminary Criteria and Indicators

The preliminary evaluation criteria and indicators that will be used for assessing the alternatives to the project from a Natural Heritage perspective include, but may not be limited to, those set out in **Table 3-1**. The preliminary evaluation criteria and indicators will be finalized based on comments received during the Niagara Escarpment Crossing EA and documented in the EA Report.

Table 3-1: Preliminary Criteria and Indicators for Assessing the Alternatives To the Project

Category	Criterion	Indicator
Natural Environment	- Effect on terrestrial habitat functions	- Effects on sensitive environmental features (Niagara Escarpment, provincially significant wetlands (PSWs), etc.)
Natural Environment	- Effect on terrestrial habitat functions	- Effects to vegetation (wetlands, woodlands, meadow/thickets etc.)
Natural Environment	- Effect on terrestrial habitat functions	- Effects on threatened or endangered species and habitat
Natural Environment	- Effect on aquatic habitat functions	- Effects on aquatic species, habitat availability and quality

Category	Criterion	Indicator
Natural Environment	- Effect on aquatic habitat functions	- Effects on threatened or endangered species and habitat

3.2 Alternative Methods of Carrying Out the Project

Following the identification of the preferred alternative(s) to the project, alternative methods of carrying out the project will be generated, possibly screened, assessed, and comparatively evaluated leading to a recommended method(s). The recommended method(s) will be presented to review agencies, Indigenous Communities, and the public for a defined period to receive comments, following which a preferred method(s) will be identified.

The generation and possible screening of the alternative methods will be based on available existing information sources contained in the Baseline Conditions Reports. The assessment of the alternative methods of carrying out the project (through the application of evaluation criteria) will be based more on the information provided through subsequent work (e.g., field investigations, modelling, etc.) contained in the Baseline Conditions Reports, as appropriate.

3.2.1 Preliminary Criteria and Indicators

The preliminary evaluation criteria and indicators that will be used for assessing the alternative methods of carrying out the project from a Natural Heritage perspective include, but may not be limited to, those set out in **Table 3-2**. The preliminary evaluation criteria and indicators will be finalized based on comments received during the Niagara Escarpment Crossing EA and documented in the EA Report.

Table 3-2: Preliminary Criteria and Indicators for Assessing the Alternative Methods of Carrying Out the Project

Category	Criterion	Indicator
Natural Environment	- Effect on significant habitat or functions	- Temporary and/or long-term loss of significant features or categorical loss of functions by type, including PSWs, Locally Significant Wetland,

Category	Criterion	Indicator
		environmentally sensitive areas (ESAs), areas of natural and scientific interest (ANSI's), wildlife corridors
Natural Environment	- Effect on sensitive aquatic habitat or functions	- Temporary and/or long-term loss of sensitive aquatic habitat including areas known to support key life cycle stages such as spawning areas and upwelling zones, known to support sensitive species
Natural Environment	- Effect on sensitive terrestrial habitat or functions	- Temporary and/or long-term loss of sensitive terrestrial habitat including Significant Wildlife Habitat and areas or features known to support key life cycle stages, such as particular trees for nesting, known to support sensitive species
Natural Environment	- Effect on sensitive aquatic species: native, area-sensitive	- Temporary and/or long-term loss of aquatic species requiring sensitive or uncommon habitat to complete life cycle
Natural Environment	- Effect on significant aquatic species: species of special concern, threatened, endangered, and species of local concern	- Temporary and/or long-term loss of aquatic species
Natural Environment	- Effect on significant terrestrial species:	- Temporary and/or long-term loss of terrestrial species

Category	Criterion	Indicator
	species of special concern, threatened, endangered, species of local concern	
Natural Environment	- Effect on terrestrial species: native, area-sensitive flora and fauna	- Temporary and/or long-term loss of terrestrial flora or fauna species
Natural Environment	- Effect on plants and animals important to First Nation Communities	- Temporary and/or long-term loss of plants and animals

4 Impact Assessment of the Proposed Project

Once selected, the preferred method(s) of carrying out the project (i.e., proposed project) will be further developed at a preliminary design level of detail so that the potential environmental effects can be identified with more certainty, more site-specific impact management measures (i.e., avoidance, mitigation, and compensation measures) can be developed for application, net environmental effects can be identified with more certainty, appropriate monitoring requirements can be clearly defined, and specific approval/permitting requirements for constructing the proposed project can be identified.

In concert with preparing the preliminary design level of detail, it may be necessary to undertake additional work (e.g., field investigations, modelling, etc.) at the impact assessment stage of the Niagara Escarpment Crossing EA. The additional work proposed as part of the Natural Heritage Work Plan could include the following subject to preparation of the EA:

- Channel and slope stability assessments
- Stream erosion and migration analysis
- Meander-belt width delineation
- Target SAR surveys
- Benthic invertebrate surveys
- Bat habitat and acoustic surveys
- Tree inventories and woodland assessments
- Butternut health assessments
- Fish community surveys (quantitative)

Documentation

The results of the impact assessment including any additional work will be documented in a Natural Heritage Impact Assessment Report.

5 Documentation

The results of implementing this work plan will be documented in two reports during the Niagara Escarpment Crossing EA as follows:

- **Natural Heritage Baseline Conditions Report** – will document the results of collecting and reviewing available existing sources of information and the proposed field investigations.
- **Natural Heritage Impact Assessment Report** – will document the results of the impact assessment of the proposed project including any additional investigations.

Upon completion, each report will be made available during the Niagara Escarpment Crossing EA to review agencies, Indigenous Communities, and the public for their information via the project website and upon request and will become either a reference or supporting document to the submitted EA Report. The EA Report will be based on and reflect the information contained in the two reports.