LOWER TRENT
CONSERVATION

Environmental Impact Study
Terms of Reference
&
Submissions Standards

This document supports Lower Trent Conservation's role in the municipal plan review process under the *Planning Act*, R.S.O. 1990, as well as the review of permit applications under the *Conservation Authorities Act Ontario Regulation 163/06, Development, Interference with Wetlands & Alterations to Shorelines & Watercourses.*

Approved by: Lower Trent Conservation Board of Directors
Date: September 11, 2014
Effective: September 11, 2014
Updated: December 13, 2018

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 ENVIRONMENTAL IMPACT STUDY - WHEN IS IT REQUIRED?

Lower Trent Conservation's (LTC) Plan Review Manual provides guidance to staff for review of planning applications and provision of recommendations to watershed municipalities. Under the *Planning Act*, R.S.O. 1990, and in accordance with the Provincial Policy Statement (PPS) (2014) and our Municipal Planning Service Agreements, LTC can request an Environmental Impact Study (EIS) to help guide recommendations for applications for development within or adjacent to natural heritage features or areas. In addition, LTC can request a Natural Heritage Evaluation under the Growth Plan for the Greater Golden Horseshoe (2017) for applications for development within, or within 120 metres, of a Key Natural Feature within the Natural Heritage System, or within 120 metres of a Key Hydrologic Feature anywhere in the Growth Plan area. These recommendations are provided to the affected municipalities for their consideration. In addition, under the *Conservation Authorities Act Ontario Regulation 163/06, Development, Interference with Wetlands & Alterations to Shorelines & Watercourses*, LTC can request an EIS to aid informed decision-making by LTC on permit applications within or adjacent to a wetland or watercourse. An EIS may need to be updated if the development proposal changes or new natural heritage information becomes available.

This document outlines the EIS Terms of Reference and Submission Standards for proponents, and their consultants, for both municipal planning and permit applications. The intent of these guidelines is to:

1. Provide standardized study guidelines;
2. Improve the quality of submitted reports; and
3. Expedite the review process.

The EIS requirements for the municipal planning process and for the Conservation Authority regulations process are outlined in Figures 1a and 1b.

Figure 1a. Overview of Environmental Impact Study process for municipal planning development applications under the *Planning Act*.

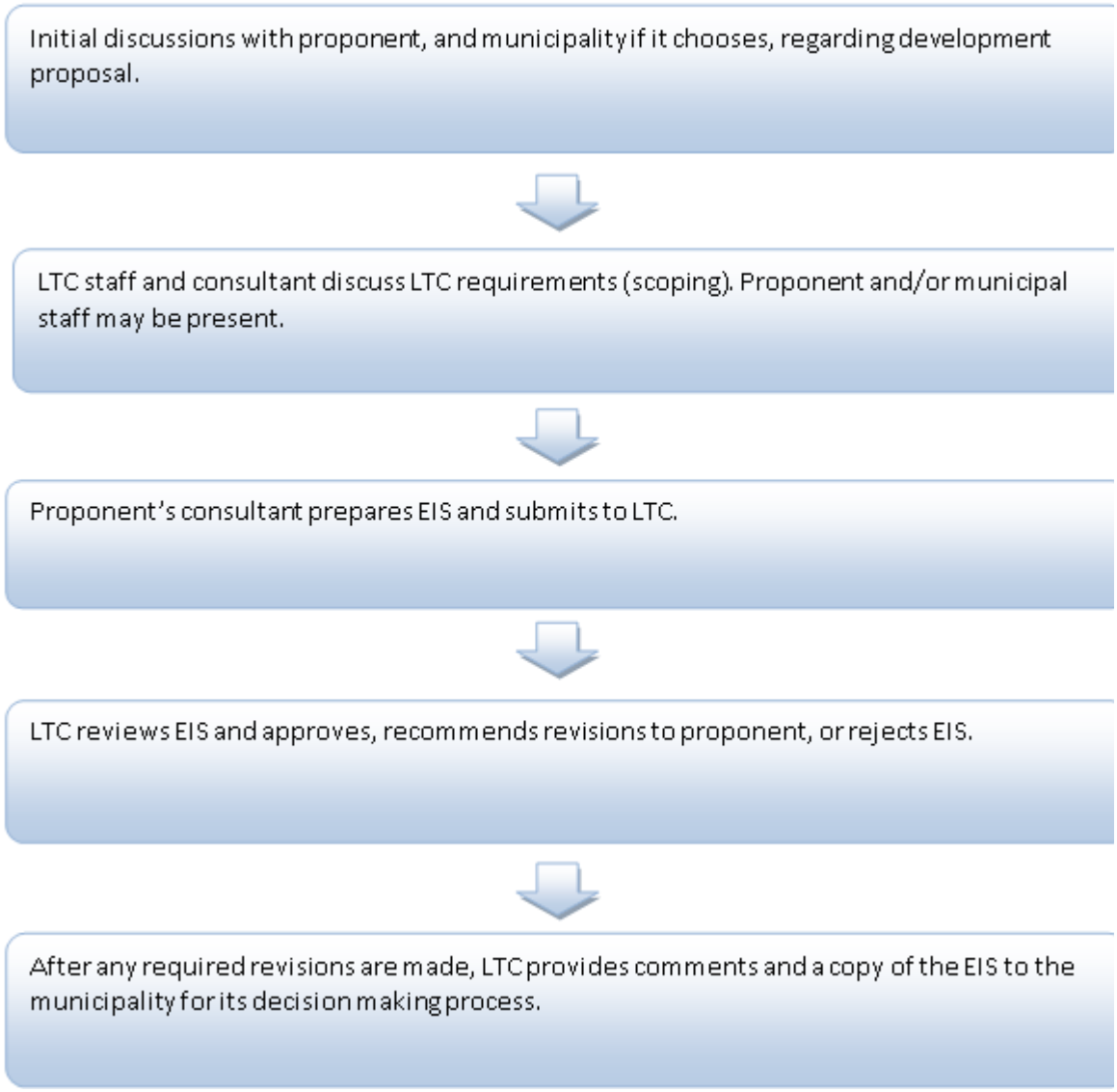
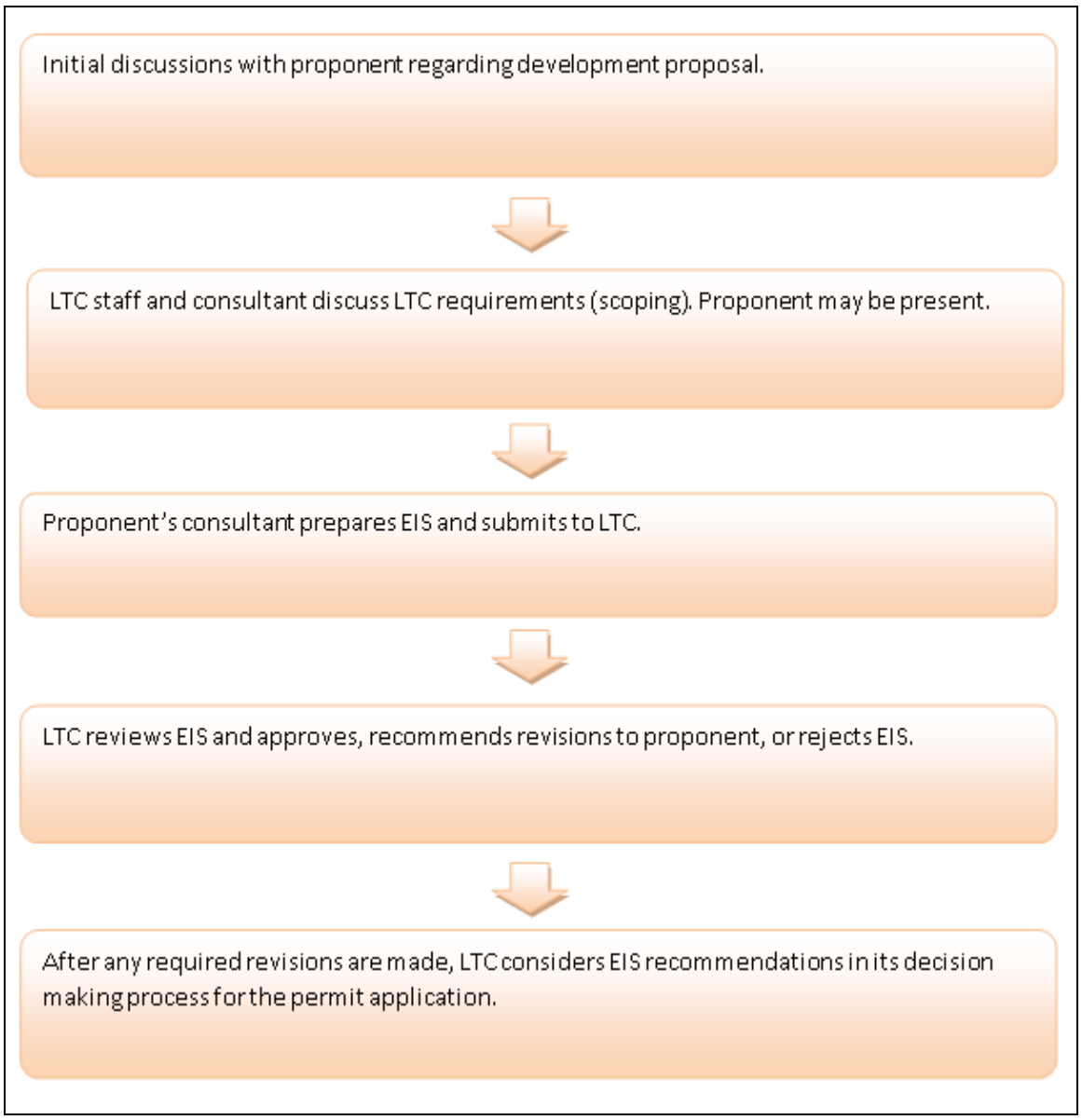


Figure 1b. Overview of Environmental Impact Study process for permit applications under the *Conservation Authorities Act Ontario Regulation 163/06, Development, Interference with Wetlands & Alterations to Shorelines & Watercourses*.


Initial discussions with proponent regarding development proposal.
LTC staff and consultant discuss LTC requirements (scoping). Proponent may be present.
Proponent's consultant prepares EIS and submits to LTC.
LTC reviews EIS and approves, recommends revisions to proponent, or rejects EIS.
After any required revisions are made, LTC considers EIS recommendations in its decision making process for the permit application.

Note: This document supports Lower Trent Conservation's role in the municipal plan review process under the *Planning Act*, R.S.O. 1990, as well as the review of permit applications under the *Conservation Authorities Act Ontario Regulation 163/06, Development, Interference with Wetlands & Alterations to Shorelines & Watercourses.*

1.2 ENVIRONMENTAL IMPACT STUDY - WHAT IS IT?

An EIS assesses potential impacts of a development proposal within or adjacent to a natural heritage feature or area. This EIS Terms of Reference and Submission Standards document sets out the process for undertaking an EIS when required as part of planning and permit applications. The purpose of the EIS is to ensure the protection of significant1 natural heritage features and areas, and their functions, including, but not limited to the list below.

- Wetlands, including coastal wetlands
- Habitat of Threatened and Endangered Species
- Areas of Natural and Scientific Interest
- Woodlands

[1] Significant, as defined by the 2014 Provincial Policy Statement means:
a) in regard to wetlands, coastal wetlands and areas of natural and scientific interest, an area identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time;
b) in regard to woodlands, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These are to be identified using criteria established by the Ontario Ministry of Natural Resources; and
c) in regard to other features and areas in policy 2.1, ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system.

- Valleylands
- Fish Habitat
- Wildlife Habitat

An EIS may also be requested for proposed development in or adjacent to watercourses and/or wetlands that are not designated as provincially significant, since regard for LTC Regulations needs to be considered at the planning stage.

An EIS identifies and assesses potential impacts of a proposed development on environmentally sensitive features, adjacent lands and ecological functions, specifying appropriate mitigation measures. It should be based on: a detailed literature review, field investigations, as well as modeling (where appropriate). An EIS may be coordinated with other technical studies (e.g. hydrological, hydrogeological, stormwater management). Lastly, an EIS should provide recommendations for natural heritage protection and ecological enhancement.

Note:

In some cases (subdivision or site plan application), a Comprehensive EIS may need to be conducted on a watershed or subwatershed scale to identify natural heritage features for protection, potential development areas, and development setbacks that are ecologically sustainable. The natural heritage or environmental management strategies developed through watershed, subwatershed or secondary plans may fulfill these requirements. Should a Comprehensive EIS be required, LTC will work with the municipality and/or proponent to develop a Terms of Reference.

1.3 PRE-CONSULTATION - BEFORE SUBMITTING AN APPLICATION

Pre-consultation is an opportunity for the proponent, municipality and LTC to discuss the development proposal and identify the issues and concerns surrounding the protection of natural heritage on the subject site. Pre-consultation should occur prior to circulation of the development application to ensure a complete application is submitted under the

Planning Act, or under the *Conservation Authorities Act Ontario Regulation 163/06, Development, Interference with Wetlands & Alterations to Shorelines & Watercourses*.

The intent of pre-consultation is to:

- Review current policy, discuss existing information, data and recommendations provided in other studies, including subwatershed studies that are relevant to the subject lands and the development proposal;
- Determine the scope of EIS that is required based on the significance and sensitivity of the natural heritage features and areas, and their associated functions of the subject site and adjacent lands, and the scale of the proposal;
- Identify future site visit dates to be conducted by the proponent/consultants and agencies to field review and/or stake the natural feature boundaries (e.g., top of bank, wetlands, woodland drip line), potential locations for watercourse crossings, geotechnical hazards, etc.

Both the proponent and LTC should provide information at the pre-consultation meeting.

- The proponent may provide:
  - Development proposal
  - Preliminary site plan, if available
  - Existing background information

- LTC may provide:
  - Natural heritage feature and hazardous area mapping
  - Policy documents relevant to subject property
  - Relevant studies and recommendations
  - Information on regulations affecting the subject property
  - Suggestions for modifying development area, to reduce EIS requirements or avoid the need for an EIS altogether

1.4 WHY IS AN EIS REQUIRED?

An EIS is generally required when development or site alteration is proposed within or adjacent to an area identified as a natural heritage feature or area either by the province, the municipality, or LTC. The PPS does not permit development and site alteration on adjacent lands to a significant natural heritage feature and area, unless the ecological

functions of those adjacent lands have been evaluated demonstrating no negative development impacts on the features or their ecological functions. For example, development or site alteration proposed within 120 m of a provincially significant wetland (PSW) will trigger an EIS under the PPS.

LTC generally prohibits development in all wetlands and adjacent lands under its Regulations, not only those considered significant under the PPS. Since regard for our Regulations needs to be considered at the planning stage, LTC may request an EIS for development in or adjacent to a wetland that is not significant under the PPS.

It is important to note that the submission of an EIS does not guarantee approval of a development or permit application. In some circumstances, LTC may require a peer review of the EIS, and, like the EIS, the costs incurred to conduct the peer review will be the responsibility of the proponent.

1.5 QUALIFICATIONS

The qualifications of the individual(s) tasked to complete an EIS must meet minimum standards as set by LTC. Fieldwork must be completed by qualified professionals with appropriate training, such as the Ministry of Natural Resources and Forestry Ontario Wetlands Evaluation System and the Ecological Land Classification system, as well as education and experience in biology, ecology, botany or related fields. Specific expertise may be required for specific surveys.

1.6 EIS TERMS OF REFERENCE

The specific information requirements needed to complete an EIS are scoped for each application following the pre-consultation meeting. Generally, this will address the following:

1. Description of proposed development;
2. Study area boundaries;
3. Key ecological features, functions, linkages and other natural processes that may be affected, directly or indirectly, by development;
4. Information needs and availability of information;
5. Potential impacts (direct and indirect) associated with the proposed development;
6. Means of avoiding or mitigating anticipated impacts; and

7. The nature and extent of additional information or studies that may be required.

An EIS checklist has been prepared (Appendix A) to assist with this EIS Terms of Reference customization process. The purpose of the checklist is to identify EIS parameters that must be addressed in order to support a proposed planning or permit application.

2.0 EIS REPORT REQUIREMENTS

This chapter outlines LTC's requirements for an EIS report to support municipal planning applications and permit applications. Table 1 summarizes the preferred EIS report *Table of Contents*. The content requirements of each section are elaborated on in the following pages. The EIS report formatting submission standards are listed in Appendix B.

Table 1. Outline of the Environmental Impact Study Report - Preferred Table of Contents.

EIS Report Section	Contents
Introduction	☐ Results of pre-consultation
Background	☐ Identity of proponent and professional(s) ☐ Site plan of existing conditions ☐ Location map ☐ Land use history ☐ Relevant policies and regulations
Biophysical description of site	☐ Background studies and reports ☐ Field work dates, methodology and results ☐ Existing natural heritage elements ☐ Map of existing natural heritage features and areas and the associated development constraints
Description of proposed development	☐ Description of proposed development ☐ Site plan of proposed site

Table 1. Outline of the Environmental Impact Study Report - Preferred Table of Contents.

EIS Report Section	Contents
	☐ Proposed site alterations
Potential impacts assessment	☐ Map of development constraints and site plan ☐ Impacts to physical features ☐ Impacts to ecosystems ☐ Impacts to society ☐ General impacts
Analysis of mitigation measures and compensation options	☐ Mitigation measures ☐ Compensation options
Monitoring	☐ Study design to evaluate mitigation and compensation measures, where appropriate
Conclusions and recommendations	☐ Summary of impacts ☐ Summary of mitigation measures and/or compensation options ☐ Preferred development alternative
References	☐ List of reference materials cited
Appendices	☐ Maps ☐ Species lists

Table 1. Outline of the Environmental Impact Study Report - Preferred Table of Contents.

EIS Report Section	Contents
	☐ Copies of completed field sheets (ELC, OWES, MMP, etc.) ☐ Photographs ☐ CV(s) of professional(s) conducting EIS

2.1 INTRODUCTION

This section of the EIS report should summarize the results of the pre-consultation meeting with LTC and outline the agreed upon EIS Terms of Reference.

2.2 BACKGROUND

This section should provide details about existing conditions on the subject property. The identity of the proponent, as well as the identity and professional expertise of the proponent's representative(s) (consultant) should be outlined and their curriculum vitae provided as an appendix. This section should also briefly describe the historical and present land uses on the subject property, as well as the current land use policy and regulations on and adjacent to the subject property. A general location map and site map is required.

2.3 BIOPHYSICAL DESCRIPTION OF SITE

This section of the EIS should provide a description of the existing natural environment. It should summarize the relevant background studies and report the results of field work conducted during the current study. The study area, survey dates, and field methodology should be discussed in detail. A discussion of the broader Natural Heritage System within which the site is located should be included where applicable. When available, LTC will provide information on wetland mapping, natural heritage features, flood plain mapping,

etc. The Ministry of Natural Resources and Forestry (MNRF) district office in Peterborough may also be a source of information on biophysical features of the site.

The biophysical description section can be divided according to six elements including: geology, hydrogeology, hydrology, vegetation, wildlife and fish habitat. The inventory, described below, can be done using primary and secondary information methods, as appropriate.

The required GIS format of maps and coordinates provided to LTC are UTM Zone 18 NAD 83 in ESRI shape file format. The use of historical aerial photographs for the subject and surrounding lands is encouraged. Photos dating back to 1952 are available at LTC. Photos of the current land conditions are also required.

The following is a general list of elements to be considered in the biophysical description of the site. All of these elements must be mapped on an existing conditions site plan showing existing structures as well as existing natural heritage features and areas. Constraints to development must be clearly identified. This should be done prior to mapping of the proposed development on the site plan.

1. Geology

    - Landforms
    - Soils
    - Topography
    - Erosion-prone locations

2. Hydrogeology

    - Recharge/discharge zones, including seeps
    - Groundwater quality and quantity
    - Groundwater elevations and flow directions
    - Seasonal groundwater elevation variations
    - Connection between groundwater and surface water at site, and the adjacent natural feature(s)

3. Hydrology

    - Surface water quality and quantity
    - Surface drainage features, including swales

- Wetlands
- Floodplain and regulation limits

4. Vegetation (see Appendix C)

    - Onsite vegetation:

        i. Determine and map all vegetation communities, including dominant species in accordance with the Ecological Land Classification System (ELC), Southern Ontario manual protocol as appropriate. In tabular format, list all species observed by ecosite or vegetation type unit. Provide copies of completed ELC field sheets in an appendix.
        ii. Examine and report on soil samples for communities that may be wetlands.
        iii. Describe the location and distribution of all rare or uncommon species based on field surveys and those obtained from the local MNRF district office.
        iv. Map and evaluate wetlands using the latest Ontario Wetland Evaluation System (OWES) Manual. Provide copies of completed OWES field sheets in an appendix.

    - Offsite vegetation, adjacent to the subject property:

        i. Describe the location and distribution of any rare, uncommon or species of conservation concern based on relevant field work and records obtained from the local MNRF district office.

5. Wildlife (see Appendix C)

    - Inventory all wildlife species for each ELC ecosite or vegetation type observed during field site visits and in background reviews. Conduct species specific inventories using acceptable methodologies when required.
    - Report on observed habitat units as per the ELC protocol (e.g., snags, den trees, hibernacula, nests, etc.).

- Conduct a breeding bird survey (include minimum of two dedicated field site visits) for each habitat type using the Point Count method and provide breeding evidence for each species observed as described in Ontario Breeding Bird Atlas Guide for Participants (2001). Complete field surveys in accordance with the appropriate timing and habitat survey requirements. Please contact the MNRF district office to determine what species specific field surveys are required for Species At Risk (e.g., bobolink, eastern meadowlark, whip-poor-will) for the property. Include owl call play back surveys where appropriate.
- Complete a spring frog and marsh bird survey in accordance with the Marsh Monitoring Program methodology (Bird Studies Canada), as appropriate.
- Identify, map and confirm all candidate significant wildlife habitat both onsite and on adjacent lands using the Significant Wildlife Habitat Technical Guide, 2000 (OMNR).
- Describe the location and distribution of any rare, uncommon species as well as Species At Risk. Please contact the local MNRF district office to obtain additional records. Please refer to the *Ontario Endangered Species Act* and the federal *Species At Risk Act* to ensure compliance.
- Identify, map and confirm all candidate Significant Habitat of Endangered and Threatened Species both onsite and on adjacent lands, if not already done so by the MNRF. Contact the MNRF district office for information and guidance. Precise configuration of the significant habitat area should be done by an individual with expert knowledge of species requirements.

6. Fish Habitat (see Appendix C)

- Determine and map the location and distribution of fish habitat and species, particularly spawning and other critical habitats (e.g., refuge pools and nursery habitat).
- Define watercourse flow characteristics with particular emphasis on seasonal fish habitat.
- Determine site specific water temperatures.
- If there is no fish habitat onsite, identify contributing functions (e.g., flow and sediment regime, water quality, vegetation as food source).

- Identify channel characteristics using the current Ontario Stream Assessment Protocol (OSAP) (Stanfield, 2013) (e.g., width, depth, substrate, meander patterns).

2.4 DESCRIPTION OF PROPOSED DEVELOPMENT

This section of the report should focus on the proposed development and/or site alteration in order to fully assess potential impacts associated with various development alternatives and methods. The level of detail required will be determined during the pre-consultation meeting. The EIS sets out conditions that must be met prior to approving development plans. Details such as stormwater management, erosion and sediment control, and/or landscaping plans may be submitted as part of the detailed site design prior to grading. The final site plan should provide sufficient detail, which may include, but is not limited to, the following:

- a detailed map illustrating proposed building envelope(s), the location of any new building(s) or structure(s), new lot lines, stormwater management areas, drainage features (e.g., swales, culverts, tile beds), septic system areas, driveways and parking lots, utility corridors, maintenance routes, public trails, etc), existing infrastructure (including renewable energy)
- a map of natural heritage features and areas, and applicable development constraints
- erosion and sedimentation control measures
- grading limits and post grading contours
- extent of proposed vegetation removal/retention
- development or land use alternatives
- timing of construction, including phasing of development
- all proposed activities associated with the development that may have environmental impacts, and
- other features as requested through the EIS pre-consultation process

Many of these elements can be discussed or described in a general or conceptual manner within the EIS, with the understanding that further detail will be provided when detailed grading information and building envelope information is available. Impacts can be clearly stated in the EIS with final impacts clarified during detailed design stages.

2.5 POTENTIAL IMPACTS ASSESSMENT

This section of the report must address impacts that might reasonably be expected to occur as a result of development. Impacts may be direct or indirect and not immediately apparent at the time of initial development. The EIS should consider impacts both onsite and relative to the adjacent lands. The assessment should consider short and long-term cumulative impacts resulting from the development proposal. It is important to note that small-scale development can contribute to cumulative impacts on the landscape. The EIS should predict cumulative impacts of the proposal including existing and future developments within the surrounding area.

Features and functions of concern may include, but are not limited to:

- Impacts to physical features
  i) topography – alteration to grade, filling, retaining walls
  ii) pre-development flood plain encroachments/alterations
  iii) watercourse or surface drainage feature alterations
  iv) sediment and erosion sensitive areas – e.g., grading on steep slopes, adjacent to drainage features, etc.

- Impacts to hydrology
  i) Water regime
  ii) Water Balance

Two documents which provide a comprehensive list of potential impacts to hydrology, particularly that of wetlands include the “Consultant’s recommendations for conducting wetland environmental impact studies (EIS) for Section 28 Regulations Permissions” report (Beacon Environmental, 2010) and the “Hydrogeological Assessment Submissions - Conservation Authority Guidelines to Support Development Applications” report (Cuddy, Soo Chan and Post, 2010).

- Impacts to ecosystems
  i) vegetation – loss of, encroachment, modification, etc.
  ii) wildlife and habitat – loss of, fragmentation, lighting, noise, predation by pets, etc.
  iii) fish habitat – any permanent alteration to, or destruction of fish habitat
  iv) habitat linkages – loss, encroachment, modification, etc.

v) other natural features including swales, hedgerows, thickets, meadows, etc.

- Impacts to society
  i) activities that occur within or adjacent to the natural features, (walking, swimming, boating, fishing, trapping, hunting, harvesting, use of all terrain vehicles, etc.)
  ii) recreational amenities – both existing and future trails, access points, etc.

Section 13 of the Natural Heritage Reference Manual (OMNR 2010) provides a comprehensive list of potential impacts on significant (as defined by the Provincial Policy Statement) natural features and natural heritage systems. A condensed list of potential development impacts can also be found in Appendix D of this Terms of Reference.

2.6 ANALYSIS OF MITIGATION MEASURES AND COMPENSATION OPTIONS

All development has the potential for negative impacts on ecosystems. This section of the EIS report must describe potential mitigation measures and possible compensation, and their effectiveness to eliminate or reduce potential impacts of the proposed development on natural features and areas and their functions.

2.6.1 MITIGATION

Mitigation, as defined by the Natural Heritage Reference Manual (OMNR 2010), involves the prevention, modification or alleviation of impacts on the natural environment and the prevention of any negative impacts. Mitigation can also include any action intended to enhance beneficial effects.

Types of mitigation include, but are not limited to:

- Modifying the proposal
- Salvaging plant material
- Vegetated buffers and setbacks
- Retaining riparian and shoreline vegetation
- Additional plantings
- Removal of non-native and/or invasive species
- Control of invasive species (gardening or landscaping with native species)
- Timing restrictions, including temporary construction setbacks

- Creating wildlife passages to reduce road kill and the barrier effect of roads
- Wildlife appropriate lighting
- Infiltration measures such as Low Impact Development technologies
- Stormwater management
- Sediment control
- Fencing to control human and pet access to natural areas
- Dedication of land, and
- Public and landowner education (e.g., adverse effects of pets, dumping of lawn clippings and yard waste in natural areas, gardening with native instead of non-native and potentially invasive plants)

2.6.2 COMPENSATION

Compensation for loss of natural vegetation cover and wildlife habitat can include restoring, enhancing or creating habitat. Generally, compensation is not considered an acceptable approach. However, for some very small, low diversity natural features, compensation may be considered, at the sole discretion of LTC, and when all other mitigation options have been determined to be not feasible. It is a last resort and in many cases will not be considered an acceptable solution.

If compensation is being contemplated, potential opportunities on the property at a suitable location should be identified through the EIS. If compensation for loss of habitat is not possible on the subject property, it may be directed off site to suitable restoration and rehabilitation sites within the LTC watershed region.

Compensation must be designed and undertaken by a qualified professional with recognized expertise in the appropriate discipline and must be prepared using established procedures and recognized methodologies to the satisfaction of LTC.

Compensation can be varied and may involve, but is not limited to restoring wetlands, planting of trees, restoring vegetation communities, creating riparian buffers, creating nesting sites, creating hibernacula, etc. It should be noted that generally, through consultation with LTC, compensation should favour “like for like.”

2.7 MONITORING

As determined during pre-consultation, monitoring may be required in the pre-construction, construction/operation and post construction periods depending on the scale of development. Details of the monitoring program will be specific to the proposal and will be determined through the completion of the EIS and supporting studies submitted for the site plan and detailed design. Monitoring must be able to detect environmental change that can be attributed to work, or an activity related to the development, and for which some anticipated level of mitigation may be employed.

2.8 CONCLUSIONS AND RECOMMENDATIONS

This section of the EIS report must:

- Identify and provide the rationale for the preferred development alternative
- Summarize any potential impacts to the natural heritage feature(s) on and off the site
- Summarize any mitigation and compensation measures to be implemented
- Indicate if additional plans are expected to be completed after the EIS report is submitted, or if a new, amended EIS is required due to substantial changes to the original proposal

2.9 REFERENCES

A list of cited materials comprising the literature review is to be provided in this section of the report.

2.10 APPENDICES

The appendices should include all information gathered while conducting site visits, including species lists of flora and fauna and site photographs. Curriculum vitae of the acting consultant(s) must also be included. Additional information that must be provided if applicable includes:

- Copies of completed field survey sheets (e.g., Ecological Land Classification (ELC), Ontario Wetland Evaluation System (OWES), Marsh Monitoring Program (MMP), etc.)
- Natural heritage feature boundaries and appropriate buffers and/or development setbacks
- Preliminary stormwater management plans

- Preliminary erosion and sediment control plans, and
- Preliminary vegetation planting and management plans for proposed restoration or buffer areas, including species lists

REFERENCES

Beacon Environmental. 2010. Consultant's recommendations for conducting wetland environmental impact studies (EIS) for Section 28 Regulations Permissions.

Cuddy, S. G. Soo Chan and R. Post. 2010. Hydrogeological Assessment Submissions - Conservation Authority Guidelines to Support Development Applications.

Lee, H, T., W. D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological Land Classification System for Southern Ontario: First Approximation and its application. Ontario Ministry of Natural Resources and Forestry, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

Ministry of Municipal Affairs and Housing. 2014. Provincial Policy Statement under the Planning Act.

Ministry of Municipal Affairs and Housing. 2017. Growth Plan for the Greater Golden Horseshoe.

Ontario Ministry of Natural Resources and Forestry. 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch Wildlife Section. Science Development and Transfer Branch.

Ontario Ministry of Natural Resources and Forestry. March 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement. 2005. Second edition. Toronto: Queen's Printer for Ontario.

Ontario Ministry of Natural Resources and Forestry. 2013. Ontario Wetland Evaluation System for Southern Ontario 3rd edition.

Stanfield, L. (editor). 2013. Ontario Stream Assessment Protocol. Version 9.0. Fisheries Policy Section. Ontario Ministry of Natural Resources and Forestry. Peterborough, Ontario. 505 pages.

APPENDICES

APPENDIX A: EIS SCOPING CHECKLIST

Date: _____ Completed by: _____

Proponent: _____

Location: _____

Type of Application: _____

Check first box if sufficient information is available; check second box if to be addressed by current EIS

□ □ **Natural Heritage Designation and Zoning:**

- □ □ Provincially Significant Wetland
- □ □ Non-Provincially Significant Wetland
- □ □ Unevaluated Wetland
- □ □ Threatened or Endangered Species Habitat
- □ □ Significant Woodland
- □ □ Significant Valleyland
- □ □ Significant Wildlife Habitat
- □ □ Area of Natural and Scientific Interest
- □ □ Fish Habitat
- □ □ Other Designations (e.g., SNA, ESA, ORM, Greenlands, etc.)

□ □ **Geology, Hydrogeology, Hydrology:**

- □ □ Subwatershed or Wetland Catchment boundary
- □ □ Surface Drainage Patterns (incl. all permanent and intermittent watercourses)
- □ □ Geomorphologic and Topographic features
- □ □ Soils (surface and subsurface)
- □ □ Groundwater Recharge/Discharge Areas
- □ □ Hyrdogeologic Conditions

Specify timing of any field studies to be done:

□ winter □ spring □ summer □ fall

□ □ **Natural Hazard Lands:**

- □ □ Survey Flood Plain
- □ □ Valleylands
- □ □ Erosion Hazards
- □ □ Poorly Drained Soils

□ □ **Biological Inventory:**

- □ □ Wetland Evaluation
- □ □ Wetland Boundary Deliniation
- □ □ Ecological Land Classification
- □ □ Wildlife Inventory
  - □ Amphibians □ Jan □ Feb □ Mar □ Apr □ May □ Jun □ Jul □ Aug □ Oct □ Nov □ Dec
  - □ Reptiles □ Jan □ Feb □ Mar □ Apr □ May □ Jun □ Jul □ Aug □ Oct □ Nov □ Dec
  - □ Birds □ Jan □ Feb □ Mar □ Apr □ May □ Jun □ Jul □ Aug □ Oct □ Nov □ Dec
  - □ Mammals □ Jan □ Feb □ Mar □ Apr □ May □ Jun □ Jul □ Aug □ Oct □ Nov □ Dec
  - □ Fish □ Jan □ Feb □ Mar □ Apr □ May □ Jun □ Jul □ Aug □ Oct □ Nov □ Dec
  - □ Insects □ Jan □ Feb □ Mar □ Apr □ May □ Jun □ Jul □ Aug □ Oct □ Nov □ Dec
  - □ Plants □ Jan □ Feb □ Mar □ Apr □ May □ Jun □ Jul □ Aug □ Oct □ Nov □ Dec
  - □ SAR □ Jan □ Feb □ Mar □ Apr □ May □ Jun □ Jul □ Aug □ Oct □ Nov □ Dec
  - □ Other:

See next page for Significant Wildlife Habitat identification.

- □ Significant Wildlife Habitat
  - □ Seasonal Concentration Areas of Animals
    - □ Waterfowl Stopover and Staging Areas -Terrestrial and Aquatic
    - □ Shorebird Migratory Stopover Area
    - □ Raptor Wintering Area
    - □ Bat Hibernacula
    - □ Bat Maternity Colonies
    - □ Bat Migratory Stopover Area
    - □ Turtle Wintering Area
    - □ Snake Hibernacula
    - □ Colonially Nesting Bird Breeding Habitat (Bank and Cliff/Tree/Shrub, Ground)
    - □ Migratory Butterfly Stopover Area
    - □ Landbird Migratory Stopover Areas
    - □ Deer Yarding Areas
    - □ Deer Winter Congregation Area
  - □ Rare Vegetation Communities or Specialized Habitat for Wildlife
    - □ Cliff and talus slopes
    - □ Sand Barren
    - □ Alvar
    - □ Old Growth Forest
    - □ Savannah
    - □ Tallgrass Prairie
    - □ Other
  - □ Specialized Habitat for Wildlife
    - □ Waterfowl Nesting Area
    - □ Bald Eagle and Osprey Nesting, Foraging, Perching Habitat
    - □ Woodland Raptor Nesting habitat
    - □ Turtle Nesting Areas
    - □ Seeps and Springs
    - □ Amphibian Breeding Habitat - Woodland and Wetland
  - □ Habitat for Species of Conservation Concern (not including End or Thr Species)
    - □ Marsh/Woodland Area-Sensitive/Open Country/Shrub/Early Successional Bird Breeding Habitat
    - □ Terrestrial Crayfish
    - □ Special Concern and Rare Wildlife Species
  - □ Animal Movement Corridors
    - □ Amphibian Movement Corridors
    - □ Deer Movement Corridors
  - □ Other
    - □ Mast producing Areas
    - □ Lek

APPENDIX B: EIS REPORTING STANDARDS

Please ensure that the following standards are met:

- 2 paper copies of the report and a digital copy, signed by the principal author(s), are submitted to LTC;
- 8 ½" X 11" paper, doubled sided;
- a title page listing the name of the proponent, address of the subject property, name of consulting firm and consultant, and the date the report was completed;
- maps 11"X17" shall be bound into the report – larger maps shall be inserted in a pocket inside the back cover of the report;
- minimum map size is 8"X11", maximum 36"X60" (folded to 8.5"x11" to fit inside report)
- all maps to include a metric scale, north arrow, full legend corresponding to all mapped features
- surveyed site plan and maps showing vegetation community boundaries identified using the Ecological Land Classification System for Southern Ontario (Lee et all. 1998), surveyed wetland boundary and verified by LTC staff, flood plain lines and regulation limits, existing and proposed land use and property boundaries;
- appendices to include:
    - annotated species checklists with current S ranks and *Endangered Species Act* and *Species At Risk Act* designations
    - CV(s) of consultant(s) carrying out the EIS
    - list of contributors
    - a copy of the approved Terms of Reference

Submitted documents shall remain the property of LTC.

APPENDIX C: DATA COLLECTION STANDARDS

The requirement for multi-season biological inventory will be determined during the pre-consultation meeting with LTC. A multi-season inventory may be waived or reduced in scale when relatively current data is available for the site. Such studies may include subwatershed studies, biological inventories, wetland evaluations, or site specific biological studies completed for a municipality or in support of other development applications. In most cases, a minimum of three (3) site visits at the appropriate time of year will be required. When older (5 years and older) inventory data is available, it must be updated through the current study. The need to supplement existing data through a single or multi-season inventory will be evaluated on a case by case basis depending on the nature of the development. The appropriate standard inventory protocols must be followed by a trained field biologist. The suggested biological inventory schedule is shown below.

Survey Timing	Target Organisms
Early Spring (Late March / early April)	• early frogs (wood, spring peeper and chorus frogs) • salamanders • ducks and geese • raptors • owls
Spring (May)	• frogs • migratory birds • reptiles including turtles and snakes • benthics • ephemeral flora
Early Summer (June)	• breeding birds • reptiles including turtles and snakes • benthics • fish and fish habitat • vegetation communities including wetlands
Summer (mid-July / early August)	• breeding birds • wildlife habitat • wetland species • vegetation communities including wetlands • summer flora

Survey Timing	Target Organisms
	• prairie species • insects including butterflies and dragonflies
Fall (September)	• migratory birds • late summer plant species • prairie species • butterflies

The following list provides standard surveying protocols for natural heritage identification and fieldwork in Ontario. *Please provide copies of completed field sheets for each field methodology used.*

1. OWES - Ontario Wetland Evaluation System for Southern Ontario (OMNR, 2013, or most current version)
2. ELC - Ecological Land Classification System for Southern Ontario (Lee et al. 1998, or most current version)
3. Ontario Breeding Bird Atlas guide for participants (2001 or most current version). (http://www.birdsontario.org/download/atlas_feb03.pdf)
4. MMP - Great Lakes Marsh Monitoring Program (http://www.bsc-eoc.org/mmpmain.html)
5. Significant Wildlife Habitat Technical Guide (OMNR 2000, or most current version)

APPENDIX D: POTENTIAL IMPACTS

Development activities likely to impact natural heritage features and areas, their functions, and natural heritage systems include: vegetation removal, grading, aggregate extraction, installation of services and utilities, building construction, water crossings, paving, groundwater taking, use of septic systems, human occupation, and recreation (walking, swimming, boating, fishing, hunting, use of all terrain vehicles, etc.).

Vegetation removal and/or site grading can:

- reduce wildlife habitat;
- fragment natural areas stressing forest interior species;
- introduce non-native species;
- cause loss of linkages for animal movement resulting in isolation of populations and ultimately loss of biodiversity;
- disturb sensitive wildlife species;
- result in loss of rare plant species and communities;
- change the soil moisture regime and vegetation communities;
- reduce stability or cause physical alterations to sensitive landforms; and
- affect groundwater recharge.

In riparian areas, vegetation removal and site grading can also:

- increase runoff and stream water temperature negatively affecting aquatic habitats;
- increase inputs of nutrients and contaminants to waterbodies;
- reduce quantity of food supply for aquatic life in the form of leaves, twigs and insects in waterbodies;
- reduce bank stability and increase erosion and sedimentation with resultant impacts on aquatic habitats;
- disrupt riparian corridors; and
- disturb sensitive wildlife species.

In addition, wildlife may be negatively impacted by the following features associated with residential and commercial development:

- lights;

- noise;
- pets; and
- lawns.

Construction of buildings and roads, and installation of services can:

- increase water contamination by oils, gasoline, grease and other materials from parking lots, driveways, and roads;
- increase imperviousness affecting groundwater recharge;
- result in direct loss of wildlife from collisions with buildings or vehicles;
- attract nesting turtles and other wildlife to roadsides increasing roadkills;
- increase nutrient inputs from septic systems;
- result in increased use of pesticides and fertilizers on lawns;
- increase predation of wildlife species by pets and invasion of non-native species;
- increase lighting and noise which may affect sensitive wildlife species; and
- result in loss of linkages between habitats.

Interference with waterways (realignment, stream crossings) can:

- affect fish movement;
- affect water temperature and aquatic habitat; and
- affect channel geomorphology, wetland communities and fish habitat.

Recreational activities and seasonal development can:

- increase harvest of fish and reduce populations;
- improve access to sensitive sites which can result in vandalism and loss of ecosystem integrity;
- increase shoreline alteration which affects fish habitat;
- cause trampling of vegetation and soil compaction which affects vegetation communities and increases runoff to watercourses (impacting aquatic life);
- result in removal of vegetation causing loss of wildlife habitat and reduced biodiversity; and
- disturb sensitive wildlife species.