

# Environmental Impact Assessment Guidelines

Regional Official Plan Guidelines





# Halton Region Official Plan Guidelines

The **Regional Official Plan (ROP)** is Halton's guiding document for land use planning. It contains policies that guide decisions related to, among other things, managing growth and its effects on Halton's social, economic and natural environment.

The **ROP Guidelines** are a set of documents that clarify, inform, and aid in the implementation of the Plan's policies.

The Guidelines have been prepared in accordance with Section 192 of the ROP. They provide direction and outline approaches that can be used to satisfy the relevant policies of the Plan. They do not introduce additional policy requirements, and, in the event of a conflict between the Guidelines and the Regional Official Plan, the Plan shall prevail.

The Guidelines may be updated from time to time as required through a report to Regional Council.

For more information, visit [halton.ca/ROP](http://halton.ca/ROP) or [halton.ca/ROPguidelines](http://halton.ca/ROPguidelines) or call 311.

**"This Plan calls for the preparation of certain guidelines or protocols to provide more detailed directions in the implementation of its *policies*."**

**Halton Region Official Plan [2009] – Section 192**



# Environmental Impact Assessment Guidelines

The **Environmental Impact Assessment (EIA) Guidelines** is intended to provide guidance regarding the Region's policies on the Regional Natural Heritage System and Environmental Impact Assessments.

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<b>Purpose</b>	<p>The purpose of the <b>Environmental Impact Assessment (EIA) Guidelines</b> is to:</p> <ul style="list-style-type: none"><li>• <b>explain</b> the Regional Official Plan policies regarding the Regional Natural Heritage System and requirements for triggering an EIA;</li><li>• <b>provide</b> methodologies and identify the level of detail required for an EIA;</li><li>• <b>identify</b> ways to avoid or minimize potential impacts to the Regional Natural Heritage System and its key features and ecological functions; and,</li><li>• <b>enable</b> municipal decision-making on development proposals which have the potential to impact the Regional Natural Heritage System.</li></ul>
<b>Application &amp; Use</b>	<p>To maintain a healthy balance between settlement areas, the rural countryside and the Regional Natural Heritage System (RHNS), when development is proposed within or adjacent to the RHNS, an Environmental Impact Assessment (EIA) may be required. The Guidelines should be used to understand the implementation of these requirements and are applicable to a variety of users, including:</p> <ul style="list-style-type: none"><li>• <b>Regional, Local and external agency staff:</b> as a resource when reviewing development applications that may require an EIA;</li><li>• the <b>development industry</b> and <b>agricultural community:</b> for clarity on the application of Regional Official Plan policy regarding EIAs; and</li><li>• the <b>public:</b> to understand how the protection and promotion of the Regional Natural Heritage System occurs through the development process.</li></ul>
<b>Supporting Documents</b>	<p>In addition to the policy direction provided by the Regional Official Plan, the following documents should be considered alongside this Guideline, as appropriate:</p> <ul style="list-style-type: none"><li>• Provincial Policy Statement, 2014</li><li>• Ministry of Natural Resources – Natural Heritage Reference Manual</li><li>• Local Official Plan &amp; Zoning By-law</li></ul>
<b>Version</b>	<p><b>Version 1.0</b>   This version of the Environmental Impact Assessment Guidelines was brought before the Inter-Municipal Liaison Committee on June, 18 2014 through Report No. IMLC01-14</p> <p><b>Note:</b> <i>This version of the EIA Guidelines is based on the Regional Official Plan as amended by Regional Official Plan Amendment (ROPA) 38, adopted by Regional Council on December 16, 2009. Many of the ROP policies related to Environmental Impact Assessments are currently under appeal at the Ontario Municipal Board. The EIA Guidelines may be updated if required at the end of the hearing process.</i></p>

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# 1.0 Introduction

## 1.1 Purpose

This EIA Guideline provides direction to the proponents of *development* to determine when an EIA is required and to identify the recommended procedure for completing an EIA. These EIA Guidelines were revised from the 2005 version to comply with the policy direction in the Halton Region Official Plan Amendment No. 38 (ROPA 38), to conform to provincial plans and legislation, including the Growth Plan for the Greater Golden Horseshoe (2006), Provincial Policy Statement (2005), the Greenbelt Plan (2005) and Ontario's Endangered Species Act (2007), and to reflect the current science in environmental protection. The guidelines include words with defined meanings as per ROPA 38, the Provincial Policy Statement (2005), the Niagara Escarpment Plan (2005) and the Greenbelt Plan (2005). These words are shown in italics, and definitions are compiled in Appendix J for ease of reference.

ROPA 38 applies a *systems approach* to protecting and enhancing natural features and functions within the Region, by implementing a Regional Natural Heritage System (RNHS). The RNHS is scientifically structured on the basis of the following components:

- key features;
- enhancements to the key features including Centres for Biodiversity;
- linkages; and
- buffers.

The goal of the RNHS is to increase the certainty that the biological diversity and *ecological function* within Halton will be preserved and enhanced for future generations.

The requirement for an EIA is specified within section 141 of ROPA 38 Part IV Healthy Communities Policies. It is the *policy* of the *Region* to:

- 141(2) Require the proponent of any *development* in certain areas or under certain conditions as specified in the Plan, to carry out an EIA; and
- 141(3) Provide guidelines for carrying out EIAs.

The purpose of an EIA is to demonstrate that a proposed *development* will result in no overall *negative impacts* to the functions and features of that portion of the RNHS affected by the development. This will be completed by identifying natural features, functions and values and assessing the potential environmental impacts, requirements for impact avoidance and mitigation measures, and opportunities for enhancement.

Within rural areas of Halton Region, agricultural land use and the RNHS coexist; the RNHS is not intended to restrict *normal farm practices*.

## 1.2 When an EIA Is Required

The need for an EIA and the scope of work to be undertaken will be determined by the Region in consultation with other relevant planning approval authorities and agencies. As part of the pre-consultation phase (see section 2.1 below) a coordinated site visit may be necessary to confirm the requirement for an EIA. In accordance with the policy direction in ROPA 38, Halton Region requires an EIA in the following circumstances:

## **1. For *development* within or adjacent to the RNHS**

For any *development*, including public works, that is located wholly or partially inside or within 120 m of the Regional Natural Heritage System, unless:

- a) it is a use conforming to the Local Official Plan and permitted by Local Zoning By-laws;
- b) it is a use requiring only an amendment to the Local Zoning By-law and is exempt from this requirement by the Local Official Plan; or
- c) exempt or modified by specific policies of ROPA 38.

## **2. For proposed *agricultural buildings* or *single detached dwellings* on existing lots and their incidental uses, within or adjacent to the RNHS**

- a) For proposed *agricultural buildings* with a footprint not exceeding 1,000 sq m or *single detached dwellings* on existing lots and their *incidental uses*, the requirement for an EIA is reduced to only where the proposed building is located wholly or partially inside or within 30 m of any Key Feature of the Regional Natural Heritage System.
- b) If the proposed *agricultural building* is located entirely within the boundary of an existing farm building cluster surrounded by *woodlands*, no EIA is required as long as there is no *tree* removal involved.
- c) For proposed *agricultural buildings* with a footprint over 1,000 sq m, the requirement for EIA is reduced to only where the proposed building is located wholly or partially inside or within 30 m of the RNHS.

## **3. For *development* within or adjacent to *sensitive surface* or *groundwater* features**

For *development* in or near *sensitive* surface water or ground water features, the need for an EIA will be determined by the Region on a case by case basis and will depend on the sensitivity of the surface and/or groundwater feature(s) and the type of *development* proposed. ROPA 38 provides policy direction through Section 145(23).

## **4. For *development* or *site alteration* within in the Greenbelt Plan Natural Heritage System or within 120 m of a *key hydrologic feature* anywhere within the *Protected Countryside*, except where exempt by specific policies of the Greenbelt Plan.**

A series of figures illustrating the above noted EIA triggers is provided in Appendix A.

### **1.3 Planning Approval Authority and Agency Roles**

A *development* application must conform to the applicable planning requirements established by planning approval authorities and agencies (provincial, regional and local municipalities, Niagara Escarpment Commission, Conservation Authorities) for conducting an assessment of the impact of *development* on natural features and functions. The completion and approval of an EIA may be part of the requirement for granting of *development* approvals. If it is determined that an EIA is required, an application can only be considered complete following the submission of the Draft EIA in accordance with the approved terms of reference (ToR).

It is not the intent of Halton Region's EIA to duplicate similar studies either recently completed or required by other agencies. It is anticipated that Halton Region's EIA will be coordinated with other agencies such as Local Municipalities, Conservation Authorities and the Niagara Escarpment Commission to avoid duplication of effort and to ensure that all agency requirements can be addressed through a one study process. To facilitate this, the EIA will be coordinated by the planning approval authority to which the development application is

submitted, referred to here as the “lead planning approval authority”. Depending on the nature of a development application, joint applications may be necessary. In these instances, Halton Region will work in consultation with other planning approval authorities to coordinate the EIA process.

The lead planning approval authority, in consultation with other relevant planning approval authorities and agencies, should coordinate pre-consultation and scoping and development of ToR for the EIA. The lead planning approval authority will also coordinate review of the draft and final EIA report in consultation with other relevant planning approval authorities and agencies. The lead planning approval authority will ensure draft EIAs will be completed under the one study process and will demonstrate conformity with policies of respective planning approval authorities and agencies before being considered appropriate for final submission. Regional staff will ensure that Regional interests related to the identification and protection of the RNHS are addressed through the one study process.

Where an EIA is triggered under Regional policy on lands contained within the RNHS and the Niagara Escarpment Plan Area the EIA process will be led by Halton Region.

In areas where an additional EIA review process has been identified through a comprehensive environmental review as part of a secondary plan process, or a watershed and/or subwatershed study, and agreed to by the Region and the applicable local planning approval authority, the Region will work in consultation with the local municipality to coordinate the additional EIA process and ensure that matters of Regional concern are addressed.

In lands where Species at Risk, wetlands, Areas of Natural and Scientific Interest, and/or natural hazards identified in the PPS are present, there will be a need for proponents of a development to consult with the Ontario Ministry of Natural Resources Aurora District office, Conservation Authority, Department of Fisheries and Oceans and/or Environment Canada during the EIA process. It is strongly recommended that the lead planning approval authority facilitate consultation with these agencies as early in the process as possible.

Contact information for the planning approval authorities and agencies referred to above is provided in Appendix B.

#### **1.4 Role of the Proponent**

The proponent should become familiar with the planning process associated with the submission of a *development* application, particularly relevant plans, policies, and supporting documents related to environmental protection. Halton Region staff can assist in directing proponents to relevant documents. Communication between the proponent and planning approval authority and/or agency staff at all stages in the EIA process will enable a proponent to meet EIA requirements in a cost effective and timely manner. Early consultation with applicable approval authorities and agencies will also be beneficial. Contact information for the various planning approval authorities and agencies that may be involved in an EIA is provided in Appendix B.

Proponents should understand that completing/preparing an EIA is an iterative process involving several steps and potentially involving the collection of comprehensive field data collected at different times of the year. In some cases, proponents may need to wait for the appropriate season to collect important field data, such as data on amphibians collected from March to July or on breeding birds collected during the breeding bird season, etc. The timing for the completion of an EIA will therefore be tied, in part, to required field data collection and the appropriate time of year for such field data collection.

In order to complete an EIA, the proponent needs to engage science experts from disciplines specific to areas to be studied and this may include wildlife biologists, fisheries biologists, botanists, hydrogeologists, and

ecologists. In some cases, the Region may wish to verify the qualifications of persons who are involved in carrying out an EIA, such as educational qualifications, experience, special certification (e.g. Ecological Land Classification, Wetland Evaluation, electro-fishing, etc.). Proponents should also be aware that research permits may be required from provincial and federal government ministries prior to conducting certain studies (e.g. MNR License to collect fish for scientific purposes, MNR Wildlife Scientific Collector's Authorization, Species At Risk Act research permit, etc.), and that these permits may take several months to obtain. All qualified professional consultants required to complete an EIA in accordance with these guidelines shall be retained at the expense of the proponent.

## **1.5 Agricultural Buildings**

Halton Region recognizes the importance of agriculture to the vitality of the Region, and recognizes the important contribution that rural land owners make to the preservation of natural heritage features on their lands. The RNHS was developed to ensure that a system of key features, enhancements to key features, linkages and buffers has been identified that is sufficiently robust to withstand the more intense ecological impacts associated with a change from rural to urban land use and thereby achieve long term protection of biodiversity. Halton Region recognizes that within rural areas of Halton Region, agriculture and the RNHS can coexist, and the policies of ROPA 38 are intended to support continued viability of farms while avoiding/minimizing impacts to the RNHS and its key features. ROPA 38 achieves this balance through modified EIA triggers for proposed *agricultural buildings*, and through a commitment to assist the proponent in carrying out an EIA required for an *agricultural building* under Section 118(3.1) through EIA scoping and/or by providing financial aid and/or in-kind service.

Appendix C provides a checklist to assist the proponent in understanding when an EIA is triggered under Regional policies, identifies typical minimum EIA study requirements, and provides a checklist for determining what review may be required based on the nature and location of a proposed agricultural building. The requirement to complete an EIA and the required scope of work will be confirmed and assisted by Halton Region on a case by case basis.

If an EIA is triggered under Section 118(3.1), Regional staff may assist the proponent through provision of the following in-kind services, as staffing capacity allows:

- Undertake background information review to identify known locations of key features of the RNHS on and adjacent to the proponents property.
- Prepare mapping in accordance with the typical minimum EIA requirements for proposed agricultural buildings, as identified in Appendix C.
- Obtain Ecological Land Classification (ELC) mapping for the subject property (where available) or undertake desktop ELC mapping.
- Coordinate a site visit with other relevant agencies to advise the proponent on building locations that would avoid triggering the requirement to complete an EIA or avoid or minimize impacts to the RNHS such that the scope of study is reduced altogether.
- Undertake staking and/or survey of key features of the RNHS or the disturbance envelope associated with the proposed building in consultation with other agencies to inform and verify study/setback requirements.

If an EIA cannot be waived the Region may provide financial support. The level of financial support will be determined on a case by case basis.

## 2.0 Recommended Procedures

The following procedure outlines the recommended steps to confirm the requirement to conduct an EIA, determine specific study requirements and obtain approval of the EIA document. A flow chart summarizing the recommended procedure is provided in Appendix D.

### 2.1 Pre-consultation

Prior to the submission of an application for *development*, the proponent is required to pre-consult with the planning approval authority to which the *development* application is being submitted.. The pre-consultation may involve other agencies affected by the proposal. The planning approval authority if not the Region will notify other appropriate authorities and agencies that may be involved in the environmental impact assessment process so that they participate in the pre-consultation process and attend pre-consultation meetings. As part of pre-consultation and/or scoping, relevant authorities and agencies may conduct reconnaissance site visit(s) to better understand natural features and functions present within and adjacent to the proposed *development* site. If an EIA is triggered, submission of a satisfactory EIA, completed in accordance with an approved ToR, will be a requirement of a complete application for a proposed development.

Pre-consultation is intended to achieve the following:

- a) Confirm that the requirement to complete an EIA is triggered by policies of ROPA 38 as summarized in Section 2.1.1 (Screening).
- b) Establish a time line to undertake the required studies and the approval process to be followed including the need for additional meetings.
- c) Begin the process of identifying sources of existing information, the nature of the information required, and the data collection and analysis methods expected to complete an EIA.
- d) Establish, typically through preparation of an approved ToR, all planning approval authority and agency requirements as summarized in Section 2.1.2 (Scoping).

#### 2.1.1 Screening

Screening is the process by which the planning approval authority/agency reviews a proposal to determine if the requirement for an EIA is triggered. To determine if an EIA is required in accordance with ROPA 38, Halton Region staff will apply the policies summarized in Section 1.2 “When an EIA is required”. Local Municipalities, conservation authorities and the Niagara Escarpment Commission may also review the proposal to determine if a similar study is triggered in accordance with their requirements. A site meeting may be required to inform the determination.

#### 2.1.2 Scoping

Scoping is an important step in the EIA study process. It refers to the exercise by which the proposed development is evaluated to establish the extent of work required for an EIA study. The scale and scope of the EIA study is dependent on the scale and scope of the proposal, its relationship to adjacent land uses, and the type of planning approval required, and will generally be determined by the planning approval authority in consultation with other agencies. Halton Region recognizes the importance of scoping, to be conducted on a case-by-case basis, and will work with the proponent to identify the appropriate study requirements to address the development proposed. The EIA study requirements established in subsequent sections of this guideline will be applied when appropriate as established through the scoping exercise. Smaller scale development proposals will be appropriately scoped to avoid placing an undue burden on the proponent.

Halton Region is committed to assisting the proponent of a proposed *agricultural building* in scoping an EIA to establish the appropriate study requirements.

In scoping an EIA, Halton Region staff in consultation with other relevant planning approval authorities and advisory agencies will consider, on a case-by case basis, the following in determining the type and extent of work required:

- a) the likely significance of the RNHS features and functions in the area of the proposed development;
- b) the boundary of the area(s) to be included in the EIA;
- c) the scale of the development and the magnitude of potential negative impacts;
- d) the availability of detailed sub-watershed studies and/or other field work which reflect current conditions to avoid unnecessary duplication of effort where inventories and studies have been completed within the past five years or where studies are currently underway and the timing of their completion satisfies the requirements of the EIA process;
- e) the presence of areas with special designation, such as Areas of Natural and Scientific Interest (ANSI) or Environmentally Sensitive Areas (ESA), noting the specific attributes and rationale for the designation;
- f) the presence or potential presence of provincially designated Species at Risk (SAR) and/or their habitat including endangered, threatened and special concern species as well as the presence of provincially, regionally and locally rare species (note: in addition to consulting the Natural Heritage Information Centre (NHIC) database proponents should contact the MNR Aurora District SAR Biologist to obtain the most current information);
- g) the presence of federally designated SAR and their critical habitat, protected under the Canada Species at Risk Act (SARA), where protection applies (in accordance with the requirements of SARA).
- h) the presence of Woodland patches 0.5 ha or larger, which requires the proponent to apply Halton Region's Significant Woodland criteria to determine significance and identify/confirm the boundaries of the Woodland.
- i) the presence of wetlands, including Provincially Significant Wetlands (PSW), Evaluated Wetlands and Unevaluated Wetlands;
- j) the presence or potential presence of Significant Wildlife Habitat;
- k) the presence of Significant Valleylands;
- l) the presence of Key Natural Heritage Features and/or Key Hydrologic Features as defined by Greenbelt Plan policies and supporting technical papers;
- m) the likely presence of surface water and groundwater features and functions (in consultation with Halton Region staff, the proponent may be referred to the Region's Guidelines for Hydrogeological Studies and Best Management Practices for Water Protection, if applicable);
- n) the presence of linkage and enhancement areas; and,
- o) specific data collection methods and data analysis protocols required, including the need for a multi-season biophysical inventory. A summary of potential data collection methods and references is provided in Appendix E.

During the completion of the EIA, features and/ or functions unanticipated during the scoping exercise may be discovered. If this occurs, the proponent should contact the relevant planning approval authority or agency as soon as possible to determine if additional studies may be required.

### **2.1.3 Submission and Approval of Terms of Reference**

Based on pre-consultation, scoping and the resulting direction on the required content of the EIA, the proponent will submit a draft ToR for the EIA to the lead planning approval authority. The lead planning approval authority, in consultation with the other planning approval authorities and agencies will review the draft ToR and may provide comment to the proponent regarding modifications necessary to ensure all study

requirements are addressed. The proponent will revise and resubmit the draft ToR to address planning approval authority and agency comments. Iterative submission and review of the draft ToR may be necessary to achieve a ToR that is acceptable to all parties. The lead planning approval authority, in consultation with the other planning approval authorities and agencies as established through the one study process, will provide final approval of the ToR for the EIA. At this time the proponent may proceed to undertake the necessary studies.

In some cases season-specific field studies are likely to be required (e.g amphibian calling or breeding bird surveys). In these instances and to avoid waiting for the next appropriate study season, the proponent may conduct these studies adhering to accepted field methods prior to receiving final approval of the ToR,

## 2.2 Delineation and Refinement of the RNHS Boundary

The RNHS is shown on Map 1 of ROPA 38 (Appendix F) based on digital geographic information available for the individual components of the RNHS at the time of plan preparation. This boundary is considered sufficiently accurate to determine when an EIA is required based on the policies of ROPA 38, however final adjustment of the RNHS boundary will be required based on detailed field data collection.

Delineation and refinement of Key Features of the RNHS as shown on Map 1G of ROPA 38 (Appendix F) will be based on generally accepted methodologies (e.g. wetland limit flagging and survey based on the Ontario Wetland Evaluation System and *woodland* dripline flagging and survey, to be undertaken in consultation with relevant review agencies). Sustainable Halton Report 3.02 (Natural Heritage System Definition & Implementation [North-South Environmental Inc. 2009]) recommends the following **minimum** buffers to Key Features of the RNHS:

- 30 m from *woodlands* and *wetlands*; and,
- 30 m on either side of watercourses.

The delineation and refinement of Linkages and Enhancements to Key Features (including *Centres for Biodiversity*) should be undertaken using a *systems approach*". A *systems approach* will ensure that refinement of these components of the RNHS will be undertaken through an examination of ecological features, functions and linkages at local and regional geographic scales and in the context of short and long term ecological needs of the (RNHS. The Sustainable Halton Report 3.02 (*Natural Heritage System Definition & Implementation*; North-South Environmental Inc. 2009) provides additional direction regarding best practices and includes a discussion of flexibility in delineating these features, including recommended minimum widths for local and regional linkages, and recommended size thresholds to guide delineation of Enhancements to Key Features. It is anticipated that final delineation of Linkages and Enhancements to Key Features will occur if/when a change from rural to urban land use is proposed, and that this will occur through boundary adjustments to components of the RNHS during detailed land use planning exercises (e.g. secondary plans).

## 2.3 Draft EIA

When all data collection and analysis is completed a draft EIA should be prepared by the proponent in accordance with the approved ToR and be submitted to Halton Region or the lead planning approval authority for review. The lead planning approval authority will specify the number of copies required for review by Halton Region and other relevant planning approval authorities and agencies. The lead planning approval authority will coordinate review of the draft EIA. Planning approval authorities and agencies involved in the EIA would provide comments to the proponent to be considered/addressed in the final EIA. The lead planning approval authority or other planning approval authorities/agencies may request that the proponent attend a meeting to discuss the draft EIA.

Where a development triggers an EIA, an application can only be considered complete following the submission of the Draft EIA to the lead planning approval authority in accordance with the approved ToR.

To be considered acceptable by Halton Region and to be considered a complete application, the draft EIA should provide:

- a) Confirmation that the study has been completed in accordance with an approved ToR, with the ToR included as part of the appendices;
- b) principal author of the report, *curricula vitae* and firm's name;
- c) a list of contributing technical field staff and *curricula vitae*;
- d) a list of all agencies and individuals contacted during report preparation;
- e) hard copies of the EIA printed on 8.5 x 11 inch double sided paper and digital copies;
- f) bibliography of literature cited;
- g) all data compiled and collected in approved hard copy and/or digital format (format to be specified by Halton Region);
- h) digital GIS files used in the preparation of figures showing the RNHS, natural features and functions, boundary survey, which where appropriate, have been confirmed by a Municipal or Conservation Authority staff person; and,
- i) copies of all field survey data sheets such as ELC data sheets, fish habitat mapping, etc.

## **2.4 Final EIA**

Based on the comments received from Halton Region and other agencies, the proponent should prepare a final EIA. This may include addenda to the draft EIA and if appropriate a revised *development* proposal and/or appropriate conditions of approval, which incorporate the final EIA recommendations. The lead planning approval authority, in consultation with the other relevant planning approval authorities and agencies, will provide final approval of the EIA. Halton Region staff will consider the final EIA in preparing comments on the *development* proposal. In preparing comments, Halton Region staff will consider how the EIA demonstrates compliance with relevant Federal, Provincial and Regional policy and legislation related to environmental protection including but not limited to the Planning Act, the Provincial Policy Statement, The Greenbelt Act/Plan, the Niagara Escarpment Act/Plan, the Conservation Authorities Act and associated policy/guideline documents, the Endangered Species Act, the Species At Risk Act, the Fisheries Act, the Migratory Birds Convention Act, ROPA 38 and Local Municipal Official Plans. Proponents should note that while an approved EIA is a pre-condition for *development* approval, an approved EIA does not secure or guarantee the approval of a *development* application.

Proponents should note the Halton ROPA 38 policy requirement regarding an approved EIA:

- 118(4) Require that the recommendations of an Environmental Impact Assessment, including the placement of *lot* lines and structures, carried out under Section 118(3) and endorsed by the *Region* be implemented through official plan amendments, zoning by-laws, site plan control, conditions of planning approval or regulations by the appropriate authority.

## 3.0 Contents of an EIA

The following sections provide direction regarding the recommended content of a typical EIA. The actual studies and information required for completion of an EIA will be determined on a case-by-case basis through scoping and submission/approval of the Terms of Reference.

### 3.1 Introduction

- a) Describe briefly the site location, existing land use and the *development* proposed (these are described in detail in subsequent sections);
- b) Outline the study area boundary and the rationale for the extent of the study;
- c) Identify the reason for conducting the EIA (i.e. the Regional Official Plan policy requirement and the portion of the RNHS triggering the EIA); and,
- d) Refer to and describe the agreed list of scoped issues and tasks based on the approved ToR. Include the approved ToR as an appendix to the EIA.

### 3.2 Approach

- a) Summarize existing information and identify data gaps;
- b) Provide a detailed description of all field study and data analysis methods used;
- c) Provide date and time (including start and stop time), purpose/target species, weather conditions and personnel involved for all field work conducted;
- d) Outline what policy review was undertaken; and,
- e) Document (including dates and names) consultations undertaken with agencies and the public (if any).

### 3.3 Biophysical Inventory

Prepare a complete biophysical inventory which reflects current conditions based on existing information sources and/or field inventory by following the recommended methods and protocols outlined in Appendix E. The biophysical inventory should include all natural heritage areas, features and functions present on-site, present on adjacent lands and present within areas as defined by the agreed boundary of the study area(s), determined through scoping of the EIA during pre-consultation. Clearly distinguish data used from existing studies from data collected by the proponent. The extent of inventory work required will be based on the approved TOR developed in the scoping process.

The proponent should prepare report figures that clearly and accurately show the location of natural features and where possible natural functions, overlaid on geographically corrected, most up to date aerial photography (orthoimagery) of the subject property (note: on reports intended for public distribution the locations of individual endangered and/or threatened species should be shown using a large (1 km<sup>2</sup>) open polygon on report figures; the exact point locations of individual endangered and/or threatened species may be provided to agencies that have undergone MNR data sensitivity training). Planning approval authorities and agencies may request submission of mapped information in a digital format to be specified by the requestor. Information compiled on natural features and functions to be overlaid on report figures may include the following:

- a) Regional Natural Heritage System and Environmentally Sensitive Areas (as defined by Halton Region);
- b) Niagara Escarpment Plan Area land use designations such as Escarpment Natural Area, Escarpment Protection Area and Escarpment Rural Area, etc.;

- c) Greenbelt Plan related information such as the Greenbelt Area and the Greenbelt Natural Heritage System, including Key Natural Heritage and Key Hydrologic Features following guidelines provided by the Province for the identification of these areas and features;
- d) Conservation Authority related information such as the Regulation Limit, floodline, and hazard lands, etc.;
- e) Provincial and Regional Life and Earth Science Areas of Natural and Scientific Interest (ANSI);
- f) PSW, Evaluated Wetlands, Unevaluated Wetlands and Coastal Wetlands;
- g) Habitat of Species at Risk (SAR) in Ontario/Canada including Endangered, Threatened, and Special Concern species, and Provincially and Regionally and Locally Rare Species and Plant Communities;
- h) Significant Wildlife Habitat for plants or animals;
- i) Woodlands 0.5 ha or larger and Significant Woodlands as defined using Region of Halton criteria;
- j) Significant Valleylands;
- k) Fish species present and fish habitat including relevant watercourse flow, thermal regime, channel and riparian characteristics;
- l) Landforms including, slope features (such as steep slopes, toe of slope, slope crest, etc.), soil type, karst features (such as sink holes, etc.), geological and topographical features (such as terraces, cliffs, outcrops, shorelines, glacial features, etc.) and contour lines;
- m) Surface water features and functions including lakes, reservoirs, ponds (natural and dug ponds), catchment areas, seepages, drainage features (such as permanent, seasonal and intermittent streams and rivers, swales, dug drains, etc.), location of culverts and weirs, presence of dams and barriers to fish passage, and riparian wetlands;
- n) Geomorphic features such as erosion and deposition areas, abandoned river and stream channels, oxbows, meander belt, bankfull channel widths, etc.);
- o) Hydrogeological features, functions and zones including groundwater recharge and discharge areas and areas vulnerable to groundwater contamination, and the collection of baseline data using appropriate instrumentation (e.g. staff gauges, data loggers, mini-piezometers, etc.);
- p) Vegetation Community Types using Ecological Land Classification protocols as well as other smaller vegetation patches, including individual or groups of trees, that are not included as Vegetation Community Types using Ecological Land Classification protocols;
- q) Other important natural features or functions of the system, such as wildlife movement corridors, staging areas for seasonal migration of birds, insects, etc.; important winter habitat such as deeryards, snake hibernacula, etc.; important breeding areas for birds, reptiles, fish, etc.

### 3.4 Biophysical Analysis

Complete a biophysical analysis which identifies the significance of natural features and functions present and outlines management strategies necessary for their long term protection and enhancement, including where applicable, recommendations for their inclusion in the RNHS in order to sustain natural habitat and native species biodiversity. The biophysical analysis should:

- a) Address current Provincial plans, policy, guidelines, technical documents and legislation such as:
  - Provincial Policy Statement (2005);
  - Natural Heritage Reference Manual Second Edition (NHRM 2010);
  - Significant Wildlife Habitat Technical Guide (OMNR 2000);
  - Significant Wildlife Habitat Decision Support System (2002);
  - Draft Significant Wildlife Habitat Ecoregion Criteria Schedules (OMNR 2012);
  - Ontario Wetland Evaluation System - Southern Manual (OWES) using the most recent amendments;
  - Greenbelt Plan (2005) and Technical Papers;
  - NEP Plan within the Niagara Escarpment Plan Area (2005);

- Ontario's Endangered Species Act, 2007 and associated regulations, recovery strategies and Government Response Statements;
- Canada's Species At Risk Act and associated regulations and recovery documents;
- Fisheries Act;
- Halton Region Conservation Authority: Regulation of Development, Interference With Wetlands and Alterations to Shorelines and Watercourses (Ontario Regulation 162/06) and associated policy and guideline documents;
- Grand River Conservation Authority: Regulation of Development, Interference With Wetlands and Alterations to Shorelines and Watercourses (Ontario Regulation 150/06) and associated policy and guideline documents, and;
- Credit Valley Conservation: Regulation of Development, Interference With Wetlands and Alterations to Shorelines and Watercourses (Ontario Regulation 160/06) and associated policy and guideline documents;

(NOTE: The proponent is encouraged to contact Halton Region to ascertain the most up-to-date version of the documents listed above)

- Determine the precise boundaries of natural features and the RNHS in consultation with Halton Region and other agency staff. The limit of some features (i.e. wetlands, physical top of bank) must be staked in the field by Conservation Authority staff and/or OMNR staff. For other features, the planning approval authority and/or agency staff may request site walks to review the final staked and surveyed boundaries of individual natural features and the RNHS boundary which would then be used in geo-referenced mapping and overlaid on recent orthoimagery;
- For any *Woodland* 0.5 ha or larger, determine if the *woodland* meets one or more of the criteria for designation as a *Significant Woodland* as defined in the ROPA 38;
- Apply a *Systems Approach* that considers the importance of protecting and enhancing ecological features, ecological functions and ecological interactions in the environment;
- Use conservation biology principles and review research that provides guidance for the identification and protection of the RNHS, including key ecological features and functions, enhancements, linkages and buffers in environments where natural habitat may be impacted by proposed *development*;
- Evaluate the *cumulative impact* of the proposed *development* on the RNHS in the context of existing *development* and likely future *development*; and
- Prepare a figure showing constraints to *development* based on the results of a biophysical analysis that establishes the boundary of the RNHS and identifies other areas for protection and restoration which collectively provide long term protection of natural habitats and native biodiversity.

### 3.5 Development Proposal Description

- In the context of the study area, describe any alternative *development* proposals considered in the refinement of the final proposal (if any), rationale for the final *development* proposal chosen, proposed phasing of *development* (if any), and expected timing of *development*.
- Provide a preliminary site plan showing the type(s) and location(s) of proposed *development* accurately overlaid on geographically corrected, most recent aerial photography (orthoimagery) of the subject property.

- c) Site plans should clearly show proposed set-backs, including notation that indicates distances from proposed *development* areas and proposed structures to lot lines and/or to environmental features and functions designated for protection.
- d) Describe all relevant current and proposed Provincial, Regional and Local Municipal Official Plan and Zoning By-law land use designations, policies and permitted uses affecting the subject property.
- e) Describe all other relevant Federal, Provincial, Conservation Authority, Regional and Local Municipal policies, existing studies and issues (e.g. servicing, stormwater management, open space dedication, transportation, hazards, and setbacks, etc.) and outline natural heritage and hydrologic designations (e.g. *ESA*, *RNHS*, recharge areas, etc.), and provide an opinion as to the ability of the *development* proposal to conform to these policies, requirements and guidelines.

### 3.6 Impact Assessment

In regard to environmental impacts the EIA must meet the requirements of the PPS (2005) and ROPA 38 in regard to no *negative impacts* on *RNHS* features and *ecological functions*. Where statements such as “no impact” are used, these must be qualified with references and/or empirical data. Impact assessment should make recommendations to revise proposed *development* plans if necessary to avoid/minimize environmental impacts to the *RNHS*.

Environmental impact assessment should consider all aspects of the proposed *development*, including issues related to engineering requirements for servicing, storm water management, and transportation etc., and the form, type and density of proposed *development* in regard to proposed land uses. Appendix G provides a list of potential environmental impacts that should be considered in relation to the proposed *development*.

Impact assessment should include one or more figures which overlays the proposed *development* on the ecological constraints of the site. The analyses should determine the area(s) (ha) and type(s) of natural features and functions that may be directly and indirectly impacted by the proposed *development*. Proposed buffers and/or setbacks which will protect natural features and functions should be clearly shown on figures and the proposed land uses within set-backs, if any, including in-ground utilities, should be specified. The rationale for the proposed set-backs should be clearly outlined, including details on how proposed set-backs will achieve protection of environmental features and functions designated for protection; relevant scientific references should be cited.

Where hydrologically *sensitive* features (e.g. permanent and intermittent streams, *wetlands*, kettle lakes, seepage areas and springs) may be impacted, a hydrological evaluation should be conducted to determine the pre and post-development water balance to ensure protection of these features through appropriate design of the proposed development including the use of low impact development approaches and appropriate stormwater management.

Impact assessment should provide an explanation of the methods and approaches used to determine impacts. Where possible, the EIA should cite scientific literature supporting conclusions drawn regarding environmental impacts. An EIA must evaluate the severity of environmental impacts in the context of the significance and sensitivity of natural features and functions present by considering:

- a) Likelihood of occurrence of impact;
- b) magnitude of impact;
- c) geographic extent of impact;
- d) timing of impact;
- e) duration of impact;
- f) frequency of impact;
- g) reversibility of impact; and

- h) cumulative effect of multiple impacts.

### 3.7 Mitigation Strategies

Mitigation strategies are intended to lessen and avoid impacts to the RNHS and to increase the long term protection of the RNHS. Mitigation is not intended to compensate for the impact of *development* on one area of the RNHS by implementing mitigation measures in another area. Mitigation should be considered in the context of the overall intent of an EIA, which is to propose a *development* approach that both avoids impact to the RNHS and identifies areas for long term protection of natural features and functions.

Describe all feasible mitigation measures and their anticipated effectiveness in maintaining the health, form and function of natural features and in reducing or eliminating potential impacts on the RNHS. Wherever possible include figures and diagrams that illustrate proposed mitigation measures and detailed methods that provide direction for implementation. As new strategies and methods for the mitigation of *development* impacts can be expected to continuously emerge, proponents should refer to and cite recent scientific literature that supports proposed mitigation measures. A list of potential mitigation measures is provided in Appendix H; however this is not to be considered exhaustive or prescriptive. Residual impacts that cannot be mitigated should also be described.

During the construction phase of site *development* direct impacts can occur as a result of construction activities within and adjacent to areas designated for protection. Indirect environmental impacts to surrounding natural features and functions can also result when mitigation measures for construction activities are not implemented and/or regularly inspected. The EIA should provide a detailed outline of mitigation measures intended to eliminate or reduce construction-related impacts to areas designated for protection. Construction-related mitigation may consider for example:

- a) Impacts associated with construction traffic and construction activity including heavy equipment operation, re-fueling, and stockpiling of building materials;
- b) Impacts resulting from wind and water erosion of exposed soils, particularly on slopes that are created as a part of site grading and road construction;
- c) Impacts that may be associated with the timing of construction and periods of sensitive and/or high biological activity; and
- d) Impacts that may be associated with the construction of temporary or permanent road crossings of waterways.

New urban *development* generally results in more people living in close proximity to natural areas. This usually constitutes a fundamental change from current land uses, which are typically agricultural. Urban *development* generally reduces the ability of wildlife to move among natural features and for plants to disperse to new habitat. The purpose of the RNHS is to mitigate this and preserve the existing ability of plants and animals to move throughout the landscape. Associated with new *development* is the potential for new and additional environmental impacts to areas designated for protection. Long term mitigation may include:

- a) Appropriate development setbacks, fencing, signage, trail development, street lighting, education pamphlets, restoration areas, living fences, etc for new residential development areas to address long term impacts of urban areas on the RNHS such as informal walking and biking trails, dumping of refuse, encroachment, invasive plants, lighting, etc.;
- b) Appropriate development setbacks, fencing, building lighting, window film treatments and new types of glass with environmentally friendly spectral qualities for new industrial and commercial development to prevent bird strikes, encroachment, improper storage of materials, noise, lighting, use of signage etc.; and

- c) Landscaping using locally native, non-invasive plant material suitable for the site's conditions in areas of new urban development to reduce invasion of non-native invasive plants within natural areas, reduce maintenance costs, and provide local habitat patches. Conservation Authority landscaping guidelines may provide assistance in this regard.

Mitigation strategies may also include enhancement of the RNHS within the area proposed for *development*. Enhancements should increase the ecological integrity and resilience of existing natural features and functions and in turn contribute to the long term protection of the RNHS. Enhancements may include, for example:

- a) Protection and restoration of areas that link or join fragmented natural features to form larger core areas in order to create habitat for area demanding species;
- b) Protection and restoration of areas that will reduce the edge-to-interior ratio of natural features and thus decrease the length of the interface between natural areas and areas of *development*;
- c) Protection and restoration of areas that will increase the width of ecological corridors; and,
- d) Protection and restoration of water catchment areas for *wetlands*.

The Region may consider a "net environmental gain" approach to the preservation and enhancement of the RNHS, based on the principles outlined in ROPA 38 policy 110(7.2), for new or expanded Mineral Resource Extraction Areas outside the Niagara Escarpment Plan area, where the proponent has demonstrated "no *negative impact*" to the features and functions of the RNHS in accordance with Provincial and Regional policies.

### **3.8 Monitoring Plan**

To ensure mitigation compliance and effectiveness, a monitoring plan for the period before construction, during construction (e.g. for sediment control, stream crossings, protection of features, etc.) and after construction, may be required for development proposals that may result in more significant impacts.

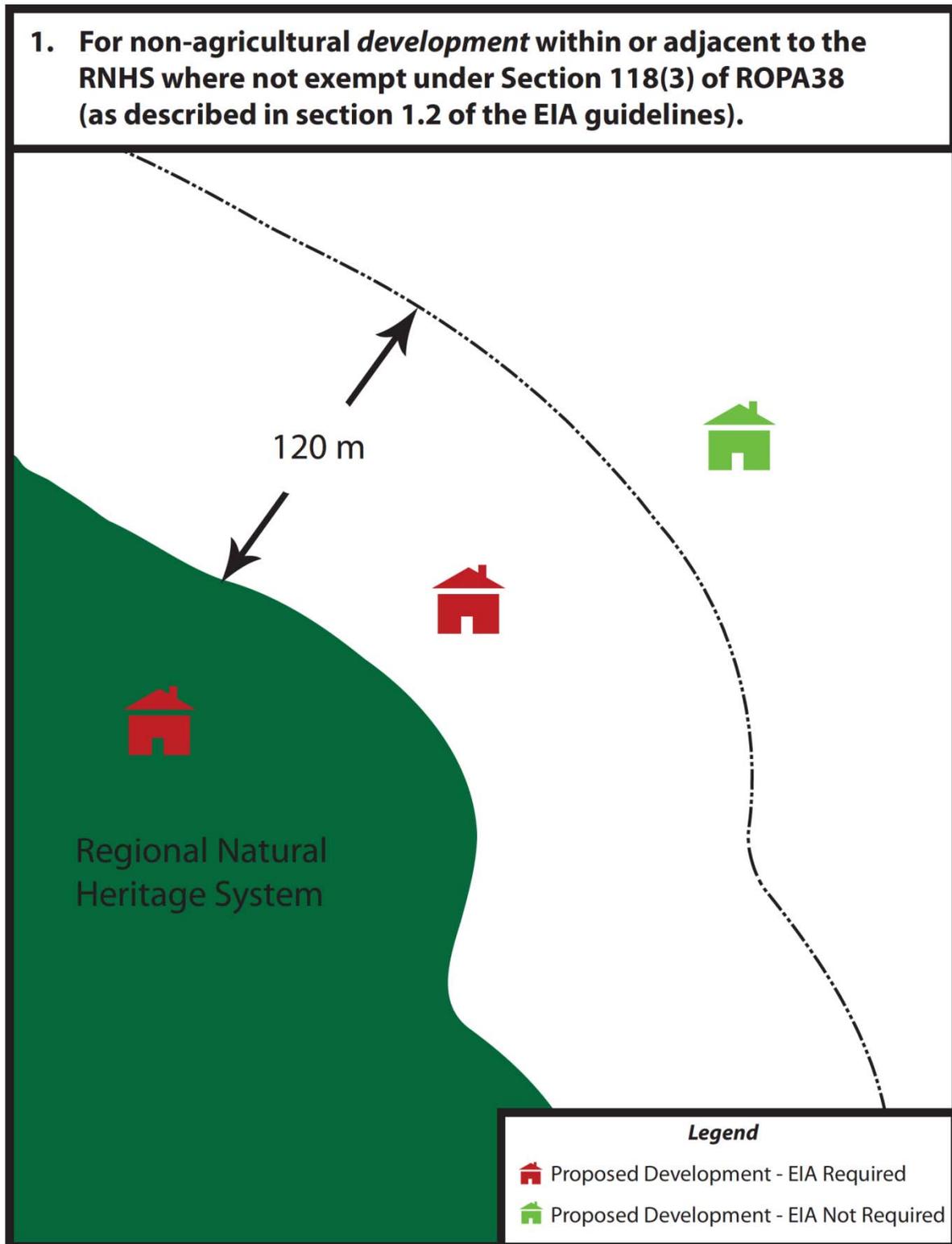
The monitoring plan should include an environmental inspection plan to be conducted through all phases of *development* outlining what is to be monitored, the frequency of monitoring, a reporting schedule and protocols that will ensure protection of natural features and functions, including invoking stop work orders, rectifying the causes of environmental damage, and restoring areas that have been impacted by construction activities.

The EIA should identify how the monitoring plan will be implemented (e.g. through site plan control, conditions of planning approval or regulations by the appropriate authority, etc.), in accordance with policy 118(4) of ROPA 38.

### **3.9 Conclusions**

Summarize the key findings of the report including biophysical inventory and analysis, assessment of impacts, impact avoidance measures, mitigation measures and opportunities for environmental enhancements. The conclusions should include a final recommendation to approve/not approve the development proposal based on the results of the study, and identify conditions of approval required to achieve no overall *negative impact*.

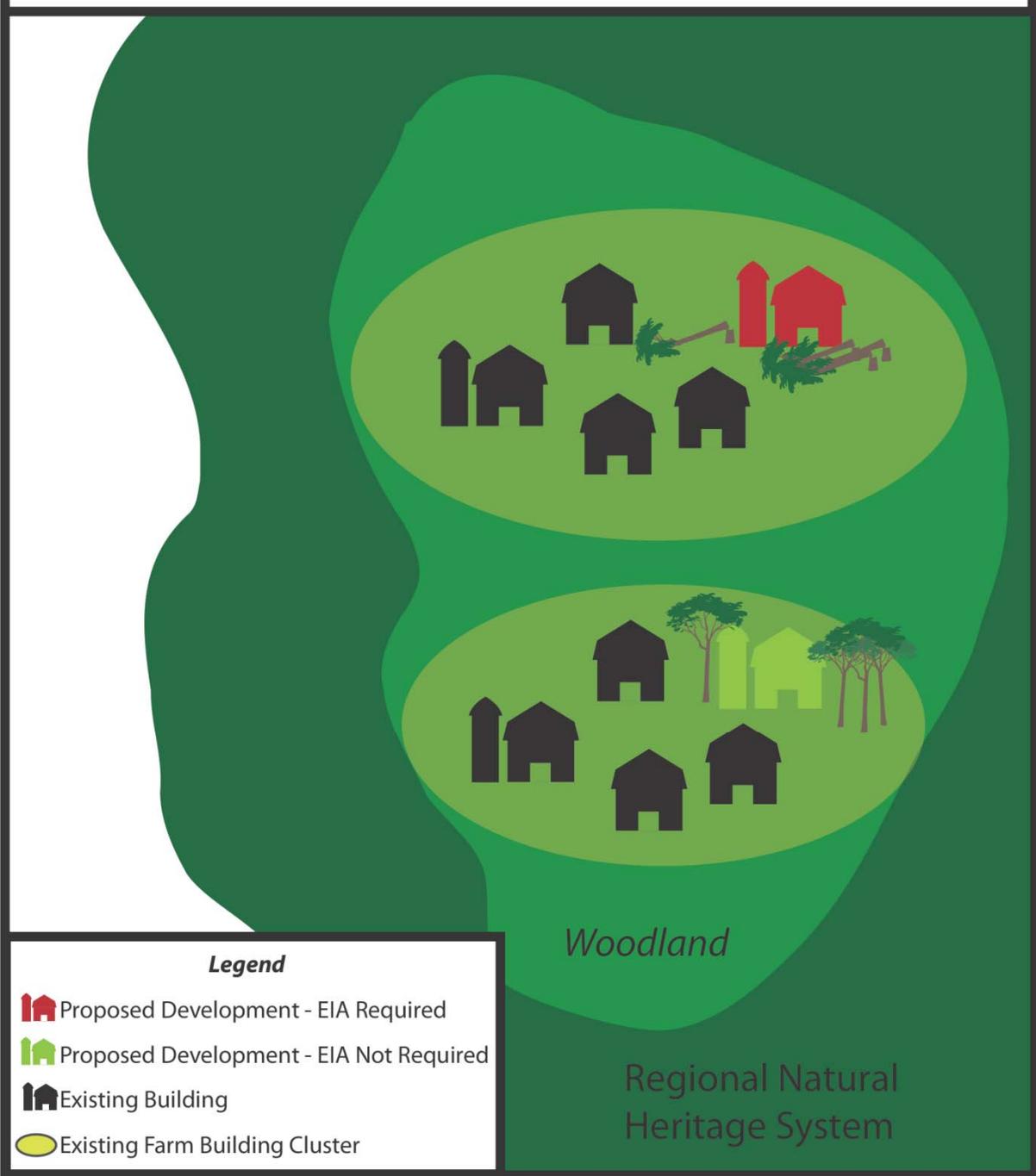
## Appendix A: EIA Trigger Figures



2a. For proposed *agricultural buildings with a footprint not exceeding 1000 sq. m. or single detached dwellings on existing lots and their incidental uses.*



2b. For proposed *agricultural buildings less than 1000 sq. m. entirely within the boundary of an existing farm building cluster surrounded by woodlands, no EIA is required as long as there is no tree removal involved.*



**Legend**

-  Proposed Development - EIA Required
-  Proposed Development - EIA Not Required
-  Existing Building
-  Existing Farm Building Cluster

Woodland

Regional Natural  
Heritage System

**2c. For proposed *agricultural buildings* with a footprint over 1000 sq. m.**

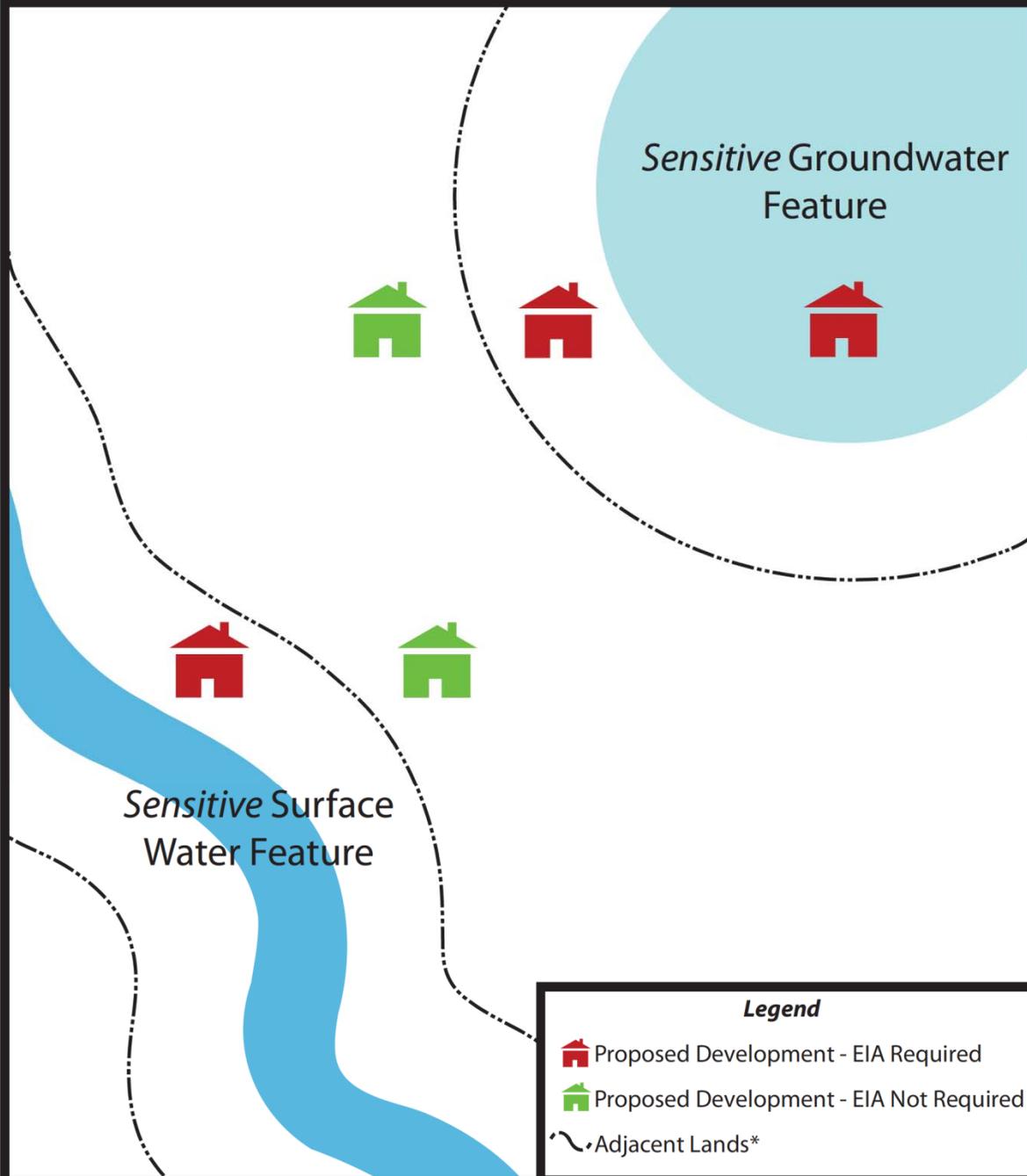


**Legend**

-  Proposed Development - EIA Required
-  Proposed Development - EIA Not Required

Regional Natural  
Heritage System

**3. For *development* within or adjacent to *sensitive surface or groundwater features***

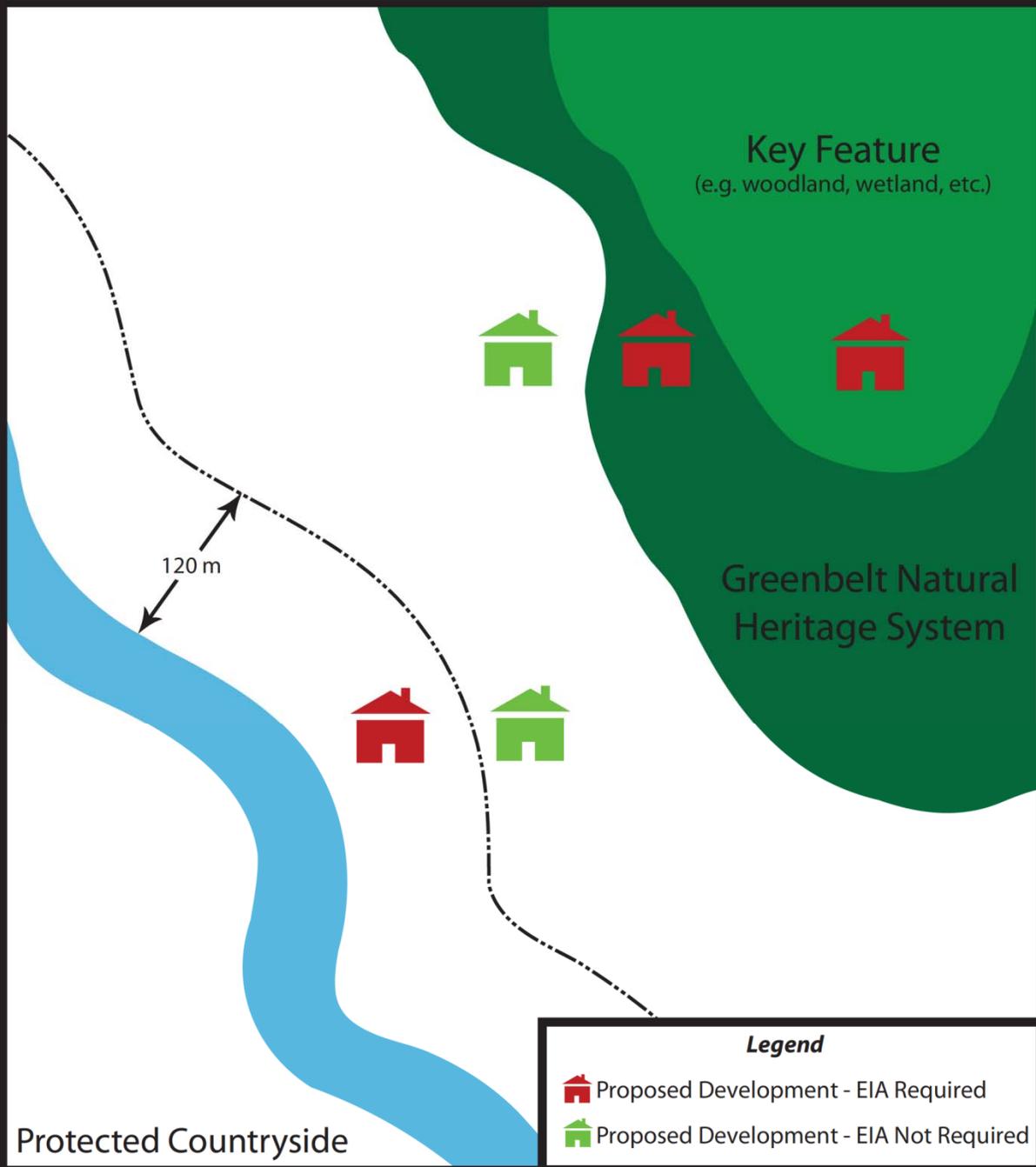


**Legend**

-  Proposed Development - EIA Required
-  Proposed Development - EIA Not Required
-  Adjacent Lands\*

\* Size of adjacent lands based on sensitivity of feature and type of development proposed

**4. For development or site alteration within in the Greenbelt Plan Natural Heritage System or within 120 m of a *key hydrologic feature* anywhere within the *Protected Countryside*, except where exempt by specific policies of the Greenbelt Plan.**



## **Appendix B: Contact Information for Planning Approval Authorities and Agencies**

### **Halton Region**

1151 Bronte Road  
Oakville, Ontario  
L6M 3L1  
Tel: 905-825-6000

### **Town of Oakville**

1255 Trafalgar Road  
Oakville, Ontario  
L6H 0H3  
Tel: 905-845-6601

### **Town of Milton**

150 Mary Street  
Milton, Ontario  
L9T 6Z5  
Tel: 905-878-7252

### **City of Burlington**

426 Brant Street  
PO Box 5013  
Burlington, Ontario  
L7R 3Z6  
Tel: 905-335-7600

### **Town of Halton Hills**

1 Halton Hills Drive  
Halton Hills, Ontario  
L7G 5G2  
Tel: 905-873-2601

### **Environment Canada (Ontario Office)**

4905 Dufferin Street  
Toronto, Ontario  
M3H 5T4  
Tel: 416-739-4826

### **Grand River Conservation Authority**

400 Clyde Road  
PO Box 729  
Cambridge, Ontario  
N1R 5W6  
Tel: 519-621-2761

### **Credit Valley Conservation**

1255 Old Derry Road  
Mississauga, Ontario  
L5N 6R4  
Tel: 905-670-1615

### **Conservation Halton**

2596 Britannia Road West  
Burlington, Ontario  
L7P 0G3  
Tel: 905-336-1158

### **Ministry of Natural Resources (Aurora Office)**

50 Bloomington Road  
Aurora, Ontario  
L4G 0L8  
Tel: 905-713-7400

### **Department of Fisheries and Oceans (Central and Arctic Region)**

3027 Harvester Road, Suite 304  
P.O. Box 85060  
Burlington, Ontario  
L7R 4K3  
Tel: 905-639-0188

### **Niagara Escarpment Commission**

232 Guelph Street  
Georgetown, Ontario  
L7G 4B1  
Tel: 905-877-5191

# Appendix C: Screening and Scoping Checklist for Agricultural Buildings

## Appendix C: Screening, Scoping and typical minimum EIA study requirements for Agricultural Buildings

### Typical Minimum EIA requirements for proposed agricultural buildings

The requirement to complete an EIA and the scope of work required will be confirmed by Halton Region on a case by case basis. If an EIA is triggered, the minimum scope of work will typically include the following:

- Applicant and property information
- General description of the site (including existing uses, ecoregion, physiography, topography, etc.)
- Mapping based on background information, aerial photograph interpretation and/or reconnaissance level site visit. Mapping should show:
  - Recent Aerial Photograph base
  - Vegetation and habitat features mapping - Using the Ecological Land Classification for Southern Ontario and also noting other vegetation or habitat features present such as hedgerows, tree clusters, barns, etc.
  - Key Features of the RNHS
  - CA regulation limit
  - Footprint of proposed building
  - Estimated disturbance zone required for building construction
  - Property boundary
  - Scale bar
- Description of the proposed building
- Description of potential impacts to ecological features, functions and sustainability of the RNHS, and evaluation of alternative locations that avoid/minimize impacts to the RNHS
- Description of mitigation measures that will be implemented to avoid or minimize impacts to ecological features and functions of the RNHS

The screening checklists below allows the proponent to understand when an EIA is triggered for a proposed agricultural building. If an EIA is triggered, the minimum scope of work identified above will typically be required. In addition to the typical minimum scope of work, other studies may be required based on the nature of the proposed building and potential impacts to the RNHS. The scoping checklist provides a general indication of how additional study requirements for proposed agricultural buildings will be determined. Actual study requirements will be determined on a case by case basis.

### Screening Checklist

Complete the screening checklist to determine if an EIA is triggered for the proposed agricultural building.

No.	Question	Answer	Outcome	Optional Alternative
1	Is the proposed building located within the Greenbelt Policy Area?	Yes <input type="checkbox"/>	Determine study requirements in accordance with Greenbelt Plan policies and detailed implementation policies in the Local Official Plan	
		No <input type="checkbox"/>	Proceed to No. 2	
2	Is the proposed building located wholly or partially inside or within 30 m of the RNHS?	Yes <input type="checkbox"/>	Proceed to No. 3	
		No <input type="checkbox"/>	No EIA triggered	
3	What is the size of the proposed building?	≤ 1000 m <sup>2</sup> <input type="checkbox"/>	Proceed to No. 4	
		> 1000 m <sup>2</sup> <input type="checkbox"/>	EIA triggered, proceed to Scoping	OR Select alternate location that is greater than 30 m from RNHS to avoid triggering EIA, or reduce size of building to less than or equal to 1000 m <sup>2</sup> and proceed to No. 4
4	Is the proposed building located wholly or partially inside or within 30 m of a key feature of the RNHS?	Yes <input type="checkbox"/>	EIA triggered, proceed to Scoping	OR Consider alternate location that is greater than 30 m from any key feature of the RNHS to avoid triggering EIA
		No <input type="checkbox"/>	No EIA triggered	

### Scoping Checklist for Agricultural Buildings

The Scoping Checklist below provides an indication of additional studies that may be required if an EIA is triggered. Actual study requirements will be determined on a case by case basis.

No.	Question	Answer	Outcome	Optional Alternative
1	Will the proposed building require disturbance or site alteration within an area regulated by a CA?	Yes <input type="checkbox"/>	CA to advise on minimum no-touch setbacks to PSW, other wetlands, valleylands/ watercourses and fish habitat required to avoid study requirements, or required scope of work, in accordance with their requirements under the Conservation Authorities Act.	OR Select alternate building location that is located outside of CA regulated area.
		No <input type="checkbox"/>	Proceed to No. 2.	
		Unknown <input type="checkbox"/>	Contact CA to confirm location of regulation limits relative to proposed building.	
2	Will the proposed building require disturbance or site alteration wholly or partially within or within 30 m of a woodland 0.5 ha or larger?	Yes <input type="checkbox"/>	Significant woodland assessment required. Proceed to No. 2a.	OR Select alternate building location that maintains minimum 30m setback from dripline of woodland 0.5 ha or larger.
		No <input type="checkbox"/>	Proceed to No. 3.	
2a	Is woodland significant?	Yes <input type="checkbox"/>	Document significant woodlands assessment and include in EIA report. Staking and survey* of significant woodland dripline required. Show surveyed dripline on maps/site plans. Proceed to No. 2b.	
		No <input type="checkbox"/>	Document significant woodlands assessment and include in EIA report. Minimize impacts to non-significant woodlands to extent feasible. Proceed to No. 3.	
2b	Will minimum no-touch buffer† from dripline of significant woodland be maintained?	Yes <input type="checkbox"/>	Show minimum no touch buffer† on maps/site plans. Mitigation to include measures to prevent access to minimum no touch buffer† during construction.	
		No <input type="checkbox"/>	In-season field studies to characterize sensitivity of woodland may be required. Scope of studies to be determined on a case by case basis. EIA to demonstrate no negative impact to the features and functions of the significant woodland.	
3	Will the proposed building require disturbance or site alteration wholly or partially within or within 30 m of a Life Science ANSI?	Yes <input type="checkbox"/>	Proceed to No. 3a.	OR Select alternate building location that maintains minimum 30m setback from Life Science ANSI.
		No <input type="checkbox"/>	Proceed to No. 4.	
3a	Is the mapped extent of the Life Science ANSI defined by a feature identified in No. 1 or 2 above?	Yes <input type="checkbox"/>	Determine study requirements in accordance with No. 1 and/or 2 above.	
		No <input type="checkbox"/>	Contact MNR to determine requirements to confirm limits of ANSI.	

**Scoping Checklist for Agricultural Buildings Continued**

No.	Question	Answer		Outcome 1	Outcome 2
4	Will the proposed building require disturbance or site alteration wholly or partially within or within 120 m of known Significant Habitat of Endangered or Threatened Species?	Yes	<input type="checkbox"/>	Consult with MNR to confirm study requirements.	
		No	<input type="checkbox"/>	Complete SAR Screening <sup>^</sup> to identify candidate SAR habitat and proceed to No. 4a.	
		Unknown	<input type="checkbox"/>	Complete SAR Screening <sup>^</sup> to identify candidate SAR habitat and proceed to No. 4a.	
4a	Did SAR Screening identify potential SAR occurrence based on habitat present?	Yes	<input type="checkbox"/>	Document SAR screening and include in EIA report. EIA report mapping to identify habitat features that have potential for SAR occurrence. Proceed to No. 4b.	
		No	<input type="checkbox"/>	Document SAR screening and include in EIA report.	
4b	Is disturbance or site alteration required within minimum separation distance <sup>‡</sup> from candidate SAR habitat?	Yes	<input type="checkbox"/>	Field surveys to determine SAR presence/absence may be required. Nature of required surveys to be determined on a case by case basis in accordance with MNR requirements.	OR Select alternate building location that maintains minimum separation distance <sup>‡</sup> from habitats with potential to support SAR.
		No	<input type="checkbox"/>	Mitigation to include measures to prevent access within minimum separation distance <sup>‡</sup> from candidate SAR habitat.	

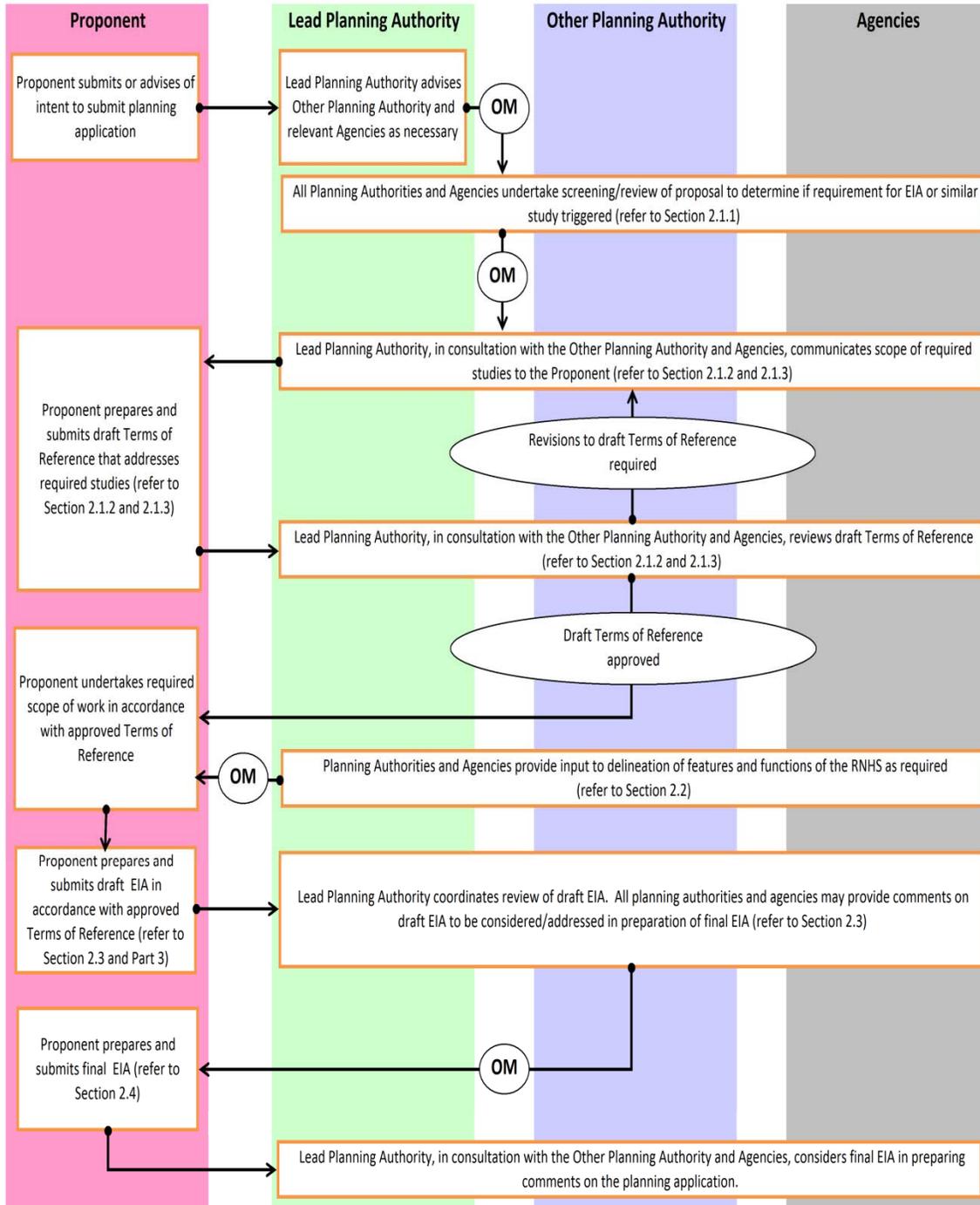
\*GPS with sub-metre accuracy will be considered equivalent to survey for agricultural buildings

<sup>^</sup>SAR screening is an evaluation of the potential for a site to support SAR based on comparison of habitat present and habitat requirements of SAR species with potential to occur in the vicinity of a proposed development. Habitats with potential to support SAR species are considered candidate SAR habitat. A SAR screening template for Halton Region is available from Halton Region staff.

<sup>†</sup>Minimum no-touch buffer from significant woodland dripline is 10m for agricultural buildings less than or equal to 1000m<sup>2</sup>, 30m for agricultural buildings greater than 1000m<sup>2</sup>.

<sup>‡</sup>Minimum separation distance from candidate SAR habitat is 30m for agricultural buildings less than or equal to 1000m<sup>2</sup>, 120m for agricultural buildings greater than 1000m<sup>2</sup>.

# Appendix D: EIA Procedure Flow Chart



**OM** Optional Meeting/Site Meeting

## Appendix E: EIA Methods and References

The following data sources, inventory protocols and reference manuals provide important direction and detailed methods for field data collection and data analysis necessary for the completion of an EIA. Table 1 outlines optimal periods for field inventory and the preferred field inventory methods to be used for field studies commonly conducted when completing an EIA.

Note that data collection requirements and protocols may be updated from time to time, and as such, the list provided below may not represent the most recent versions/editions. The proponent is encouraged to contact Halton Region to ascertain the most current versions.

### **General References for all EIA studies:**

- The Halton Natural Areas Inventory 2006 Volumes 1 and 2 should be considered the primary sources of information for local species status.
- NHIC Website (click on species)  
<https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/mainSubmit.do>
- Halton Region *Environmentally Sensitive Area* Consolidation Report, February 2005
- The Physiography of Southern Ontario; Ontario. Chapman, L.J. and D.F. Putnam. 1984. Geological Survey, Special Volume 2, 270 p. Accompanied by Map P.2715 (coloured), scale 1:600 000.
- Conservation Authority EIS Guidelines
- Conservation Authority Landscaping Guidelines
- Environment Canada's How Much Habitat is Enough? Guidelines
- Evaluation, Classification and Management of Headwater Drainage Features: Interim Guidelines. Updated March 2009. <http://www.trca.on.ca/dotAsset/50335.pdf>
- Ministry of Transportation Habitat Mapping protocols

### **Important References for Significant Species:**

- Species at Risk Act (SARA) 2002 Regulations and Rankings– federal regulations will only apply to species on federal land but these species can indicate Significant Wildlife Habitat
- Endangered Species Act (ESA) 2007
- Species *Recovery Strategies* (e.g. Jefferson Salamander *Recovery Strategy* February 2010) and Government Response Statements as published by MNR under the ESA 2007
- Natural Heritage Information Centre Database and Rarity Ranking Tables, MNR (Note: MNR District office should be contacted for the most up-to-date information)
- The MNR SARO website should be used to determine the provincial status of species  
<http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/276722.html>
- The Species at Risk Public Registry website to determine the most up-to-date national status of species and link to relevant documents e.g. status reports, recovery strategies etc. ;(Note: the most recent status documents may not yet be on-line and consultation with Environment Canada may be required, e.g. Hooded Warbler, which has recently (2012) been assessed as Not at Risk but for which the most recent on-line status report is 2000 [http://www.sararegistry.gc.ca/sar/index/default\\_e.cfm](http://www.sararegistry.gc.ca/sar/index/default_e.cfm)
- Significant Wildlife Habitat Technical Guide, MNR, 2000
- Significant Wildlife Habitat Decision Support System 2002
- Draft MNR Significant Wildlife Habitat Eco-regional Criteria Schedules - criteria for designating Significant Wildlife Habitat in Ecoregions 6E and 7E: Environmental Registry: EBR Registry Number 011-5740
- MNR protocols for surveys for selected Species at Risk, e.g. Bobolink, Eastern Meadowlark, bat species. (request from MNR)

- Natural Heritage Reference Manual. MNR, 2010
- For Butternut (*Juglans cinerea*) follow MNR protocol for Butternut Health Assessment

### **Earth Sciences**

- The Physiography of Southern Ontario; Ontario. Chapman, L.J. and D.F. Putnam. 1984. Geological Survey, Special Volume 2, 270 p. Accompanied by Map P.2715 (coloured), scale 1:600 000.
- Ontario Institute of Pedology 1985 Field Manual to Describing Soils, Third Edition
- Soils of Halton County: Report No. 43 of the Ontario Soil Survey. Gillespie, Wicklund and Miller. 1971.

### **Flora and Plant Communities**

- Flora Ontario (<http://www.uoguelph.ca/foibis/>)
- NHIC Website (click on species or communities)  
<https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/mainSubmit.do>
- Lee et al. (1998) Ecological Land Classification System for Southern Ontario, Ministry of Natural Resources (MNR)
- Distribution and Status of the Vascular Plants of the Greater Toronto Area (Varga et. al. Draft 2005)
- Halton Natural Areas Inventory 2006 Volumes 1 and 2 (This document should be considered the primary source for local species status)

### **Fauna**

- Ontario Breeding Bird Atlas protocols and conventions (Cadman et al. 2007 and on-line summaries at <http://www.birdsontario.org/atlas/index.jsp>)
- Ontario Benthos Bio-monitoring Network protocol for invertebrates
- Ontario Stream Assessment Protocol for fisheries and benthos, MNR:  
[http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@letsfish/documents/document/22687\\_1.pdf](http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@letsfish/documents/document/22687_1.pdf)
- NHIC Website (click on species)  
<https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/mainSubmit.do>
- Ontario Herpetofaunal Summary at the NHIC website:  
<http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html>
- Halton Natural Areas Inventory 2006 Volumes 1 and 2 (This document should be considered the primary source for local species status)
- For fieldwork undertaken in addition to required monitoring protocols, the methods used for mammals, reptiles, amphibians, odonates (dragonflies and damselflies), butterflies, etc., should describe fieldwork methods used and include date, time, location, weather, crewmembers, and other incidental information such as, transects followed, animal signs (e.g. scat, hair, burrows, nests, etc), etc.

### **Significant Species Regulations and Legislation**

- Species at Risk Act (SARA) 2002 Regulations and Rankings
- Endangered Species Act (ESA) 2007
- Federal Aquatic Species at Risk Act mapping available at  
<http://conservationontario.ca/projects/DFO/find/southwestern.html>
- Migratory Birds Convention Act (1994)
- Species Recovery Strategies (e.g. Jefferson Salamander *Recovery Strategy* February 2010) and Government Response Statements as published by MNR under the ESA 2007
- Natural Heritage Information Centre Database and Rarity Ranking Tables, MNR (Note: MNR District office should be contacted for the most up-to-date information)

- The MNR SARO website should be used to determine the provincial status of species <http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/276722.html>
- The Species at Risk Public Registry website to determine the most up-to-date national status of species and link to relevant documents e.g. status reports, recovery strategies etc. ;(Note: the most recent status documents may not yet be on-line and consultation with Environment Canada may be required, e.g. Hooded Warbler, which has recently (2012) been assessed as Not at Risk but for which the most recent on-line status report is 2000 [http://www.sararegistry.gc.ca/sar/index/default\\_e.cfm](http://www.sararegistry.gc.ca/sar/index/default_e.cfm)
- Commission for Environmental Cooperation (CEC) Secretariat Background Paper “Monarch Butterfly Monitoring in North America: Overview of Initiatives and Protocols (2009)
- Fisheries Act
- The Environmental Registry of Ontario provides up-to-date information on recent and proposed changes in policy and legislation – search keywords such as “endangered” or “species at risk” or use more specific terms
- <http://www.ebr.gov.on.ca/ERS-WEB-External/>
- Draft Guidance for Development Activities in Redside Dace Protected Habitat. MNR. February 2011.

### **Guideline Documents**

- Ministry of Transportation Habitat Mapping protocols
- Ontario Wetland Evaluation System for Southern Ontario, MNR
- Marsh Monitoring Protocol (Canadian Wildlife Service and Bird Studies Canada)
- Forest Bird Monitoring Program protocol (Canadian Wildlife Service)
- Ontario Breeding Bird Atlas protocols (Bird Studies Canada 2001)
- Significant Wildlife Habitat Technical Guide, MNR, 2000
- Significant Wildlife Habitat Decision Support System 2002
- Draft MNR Significant Wildlife Habitat Eco-regional Criteria Schedules - criteria for designating Significant Wildlife Habitat in Ecoregions 6E and 7E: Environmental Registry: EBR Registry Number 011-5740
- MNR protocols for surveys for selected Species at Risk, e.g. Bobolink, Eastern Meadowlark, bat species. (request from MNR)
- Natural Heritage Reference Manual. MNR, 2010
- For Butternut (*Juglans cinerea*) follow MNR protocol for Butternut Health Assessment
- City of Toronto Bird Friendly Design Guidelines
- Stream Temperature Analysis Tool and Exchange (STATE)
- Available Fish Management Plans prepared by MNR, the CA etc.
- Conservation Authority EIS Guidelines
- Conservation Authority Landscaping Guidelines
- Environment Canada’s How Much Habitat is Enough? Guidelines
- Evaluation, Classification and Management of Headwater Drainage Features: Interim Guidelines. Updated March 2009. <http://www.trca.on.ca/dotAsset/50335.pdf>

### **Background Documents**

- Halton Region *Environmentally Sensitive Area* Consolidation Report, February 2005
- Halton Natural Areas Inventory, 2006, Hamilton Naturalists’ Club

### **Appendix E Table 1:**

Optimal Periods for Field Inventory and Preferred Field Inventory Methods to be used in an EIA when Collecting Natural Heritage Information

Notes:

For some species, repeated sampling may be required to accurately determine species presence and abundance.

Please refer to preferred field inventory method to determine the optimal period for field inventory, including the appropriate hours during the day or night to conduct field work.

Regulations for Endangered Species may require sampling over a period of more than one year to accurately determine species presence and abundance (see for example the Jefferson Salamander *Recovery Strategy* 2010)

For all fieldwork undertaken, the EIA should describe fieldwork methods used and include date, time, location, weather, crewmembers, and other incidental information such as, transects followed, animal signs (e.g. scat, hair, burrows, nests, etc), etc.

Natural Heritage Feature	Optimal Period for Field Inventory	Preferred Field Inventory Method	Notes and Related References
Ecological Land Classification (ELC) and vegetation inventory	<ul style="list-style-type: none"> <li>• spring ephemerals April-June</li> <li>• peak season flora July-August</li> <li>• late flowering flora, particularly <i>wetland</i>, alvar and prairie flora August-Sept (note: spring inventory for these rare communities is also important)</li> </ul>	<ul style="list-style-type: none"> <li>• Ecological Land Classification System for Southern Ontario (1999)</li> </ul>	References: <ul style="list-style-type: none"> <li>• Flora Ontario (<a href="http://www.uoguelph.ca/foibis/">http://www.uoguelph.ca/foibis/</a>)</li> <li>• NHIC Website (click on species or communities) <a href="https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/mainSubmit.do">https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/mainSubmit.do</a></li> <li>• Oldham and Brinker (2009). Rare Vascular Plants of Ontario, Fourth Edition, NHIC.</li> <li>• Lee et al. (1998) Ecological Land Classification System for Southern Ontario, Ministry of Natural Resources (MNR)</li> <li>• Halton Natural Areas Inventory 2006 Volumes 1 and 2 (This document should be considered the primary source for local species status)</li> <li>• Distribution and Status of the Vascular Plants of the Greater Toronto Area (Varga et. al. Draft 2005)</li> <li>• Ontario Institute of Pedology 1985 Field Manual to Describing Soils, Third Edition</li> <li>• Soils of Halton County: Report No. 43 of the Ontario Soil Survey. Gillespie, Wicklund and Miller. 1971.</li> </ul>
Wetland evaluation and delineation	<ul style="list-style-type: none"> <li>• varies - see notes optimal periods for <i>wetland</i> community classification, birds, fish, reptiles, amphibians, and</li> </ul>	<ul style="list-style-type: none"> <li>• Ontario Wetland Evaluation System for Southern Ontario (OWES)</li> </ul>	Notes; <ul style="list-style-type: none"> <li>• <i>wetland</i> community classification and delineation requires ELC and floral inventory – follow protocols as outlined in this table</li> <li>• <i>wetland</i> evaluation also requires inventory of mammals, birds, fish,</li> </ul>

Natural Heritage Feature	Optimal Period for Field Inventory	Preferred Field Inventory Method	Notes and Related References
	<p>insects may have to be sampled at appropriate times of the year to determine if significant species are present</p>		<p>reptiles, amphibians, molluscs and insects etc., where present – follow protocols for these species groups as outlined in this table</p> <p>References:</p> <ul style="list-style-type: none"> <li>Ontario Wetland Evaluation System for Southern Ontario, MNR</li> </ul>
Mammals	<ul style="list-style-type: none"> <li>species dependent – see notes</li> </ul>	<ul style="list-style-type: none"> <li>Various - active searching, sightings, tracks, scat, hair, calls, dens, sign, photo traps, trails, live trap surveys, etc.</li> <li>most accurate methods highly labour intensive</li> </ul>	<p>Notes</p> <ul style="list-style-type: none"> <li>in addition to the inventory of mammals for some species it may be necessary to consider criteria related to the identification of significant wildlife habitat – see references below.</li> </ul> <p>References:</p> <ul style="list-style-type: none"> <li>Significant Wildlife Habitat Technical Guide, MNR, 2000</li> <li>Significant Wildlife Habitat Decision Support System 2002</li> <li>Draft MNR Significant Wildlife Habitat Eco-regional Criteria Schedules - criteria for designating Significant Wildlife Habitat in Ecoregions 6E and 7E: Environmental Registry: EBR Registry Number 011-5740</li> </ul>
Birds	<ul style="list-style-type: none"> <li>the peak breeding bird season for southern Ontario used in most monitoring protocols is May 24<sup>th</sup> to July 10<sup>th</sup></li> <li>some bird species have other breeding seasons and specialized monitoring protocols that may need to be considered (e.g. owls depending on species November to April, marsh birds depending on species April to July)</li> </ul>	<ul style="list-style-type: none"> <li>Ontario Breeding Bird Atlas</li> <li>Ontario Breeding Bird Survey</li> <li>Forest Bird Monitoring Program</li> <li>Marsh Monitoring Program</li> <li>Specific MNR protocols developed for REA applications e.g. surveys for winter raptor significant habitat, waterfowl stopover habitat, Species at Risk such as Bobolink and Eastern</li> </ul>	<p>References:</p> <ul style="list-style-type: none"> <li>Marsh Monitoring Protocol (Canadian Wildlife Service and Bird Studies Canada)</li> <li>Forest Bird Monitoring Program protocol (Canadian Wildlife Service)</li> <li>Ontario Breeding Bird Atlas protocols and conventions (Cadman et al. 2007 and on-line summaries at <a href="http://www.birdsontario.org/atlas/index.jsp">http://www.birdsontario.org/atlas/index.jsp</a>)</li> <li>Migratory Birds Convention Act (1994)</li> <li>City of Toronto Bird Friendly Design Guidelines</li> </ul>

Natural Heritage Feature	Optimal Period for Field Inventory	Preferred Field Inventory Method	Notes and Related References
	<ul style="list-style-type: none"> <li>• fall migrating birds may be monitored in September and October, spring migration late April to second week in May</li> <li>• overwintering birds from December to March</li> </ul>	Meadowlark, provide guidance on level of effort required	
Fish	<ul style="list-style-type: none"> <li>• fish survey late April-June</li> <li>• redd surveys vary by species, appropriate timing should be discussed at pre-consultation</li> <li>• fish habitat during snow/ice free conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Ontario Stream Assessment Protocol</li> <li>• electro fishing</li> </ul>	<p>References:</p> <ul style="list-style-type: none"> <li>• Federal Aquatic Species at Risk Act mapping available at <a href="http://conservationontario.ca/projects/DFO/find/southwestern.html">http://conservationontario.ca/projects/DFO/find/southwestern.html</a></li> <li>• Fisheries Act The Environmental Registry of Ontario provides up-to-date information on recent and proposed changes in policy and legislation – search keywords such as “endangered” or “species at risk” or use more specific terms <a href="http://www.ebr.gov.on.ca/ERS-WEB-External/">http://www.ebr.gov.on.ca/ERS-WEB-External/</a></li> <li>• Draft Guidance for Development Activities in Redside Dace Protected Habitat. MNR. February 2011.</li> <li>• Available Fish Management Plans prepared by MNR, the CA etc.</li> <li>• Ontario Stream Assessment Protocol for fisheries and benthos, MNR: <a href="http://www.mnr.gov.on.ca/stdprodcons/ume/groups/lr/@mnr/@letsfish/documents/document/226871.pdf">http://www.mnr.gov.on.ca/stdprodcons/ume/groups/lr/@mnr/@letsfish/documents/document/226871.pdf</a></li> </ul>
Snakes	<ul style="list-style-type: none"> <li>• April through October depending on species</li> <li>• Spring &amp; fall snake congregations</li> </ul>	<ul style="list-style-type: none"> <li>• Various - active searching, (often under debris) and road mortality surveys, knowledge of species’ activity patterns and habitat requirements</li> </ul>	<p>References:</p> <ul style="list-style-type: none"> <li>• Ontario Herpetofaunal Summary at the NHIC website: <a href="http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html">http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html</a></li> </ul>

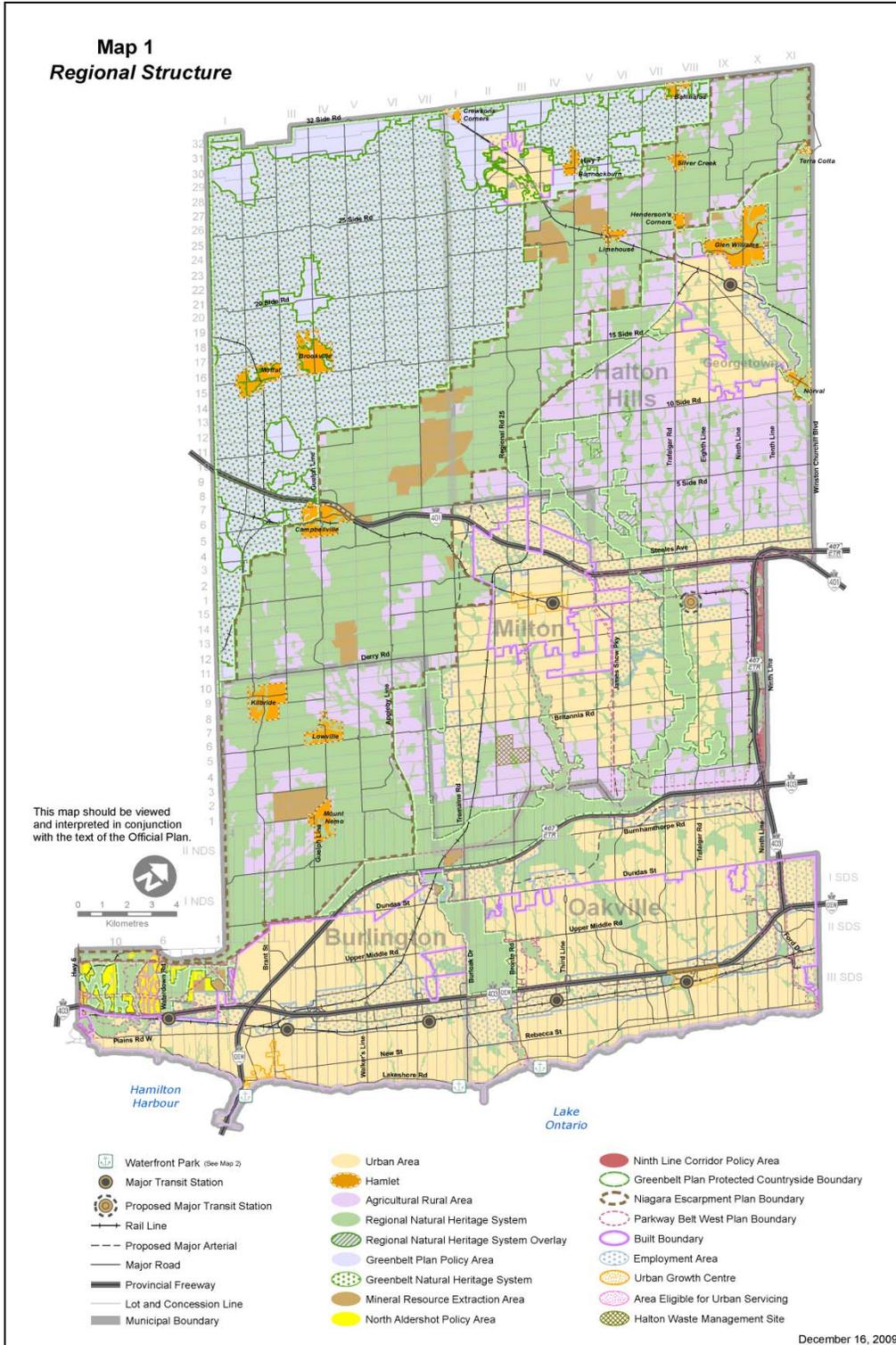
Natural Heritage Feature	Optimal Period for Field Inventory	Preferred Field Inventory Method	Notes and Related References
		<p>essential for effective surveys; location of significant habitat (breeding and hibernation) extremely sensitive – refer to OMNR or CA for information; permits may be required for searching</p>	
Turtles	<ul style="list-style-type: none"> <li>• May to August</li> </ul>	<ul style="list-style-type: none"> <li>• basking, nesting, road mortality surveys from late spring to late summer</li> <li>• nesting location data extremely sensitive – refer to OMNR or CA for information; permits may be required for searching</li> </ul>	<p>References:</p> <ul style="list-style-type: none"> <li>• Ontario Herpetofaunal Summary at the NHIC website: <a href="http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html">http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html</a></li> </ul>
Amphibians	<ul style="list-style-type: none"> <li>• species dependent - generally very early spring to summer</li> <li>• breeding salamanders - late March-early April associated with ice melt, rain and warming soil temperatures</li> <li>• frogs require regular evening monitoring in mild weather with little wind during early spring to summer to identify all species</li> </ul>	<ul style="list-style-type: none"> <li>• Frog call identification and abundance estimates using Marsh Monitoring protocols</li> <li>• Placement of wooden boards with follow-up survey</li> <li>• active searching of ponds for breeding salamanders during first spring thaw and rain</li> <li>• non-intrusive egg mass surveys</li> <li>• searches of woody debris for salamanders,</li> </ul>	<p>References:</p> <ul style="list-style-type: none"> <li>• Ontario Herpetofaunal Summary at the NHIC website: <a href="http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html">http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html</a></li> <li>• Marsh Monitoring Protocol (Canadian Wildlife Service and Bird Studies Canada)</li> </ul>

Natural Heritage Feature	Optimal Period for Field Inventory	Preferred Field Inventory Method	Notes and Related References
		<p>especially near suspected breeding ponds in early summer</p> <ul style="list-style-type: none"> <li>• salamander surveys involving egg collection and/or tail snip and/or minnow trapping should only be conducted if directed by and with permit (where required) from the MNR</li> </ul>	
Butterflies	<ul style="list-style-type: none"> <li>• species dependent May to September</li> </ul>	<ul style="list-style-type: none"> <li>• active searching</li> <li>• sweep net capture and release</li> </ul>	<p>References:</p> <ul style="list-style-type: none"> <li>• Commission for Environmental Cooperation (CEC) Secretariat Background Paper "Monarch Butterfly Monitoring in North America: Overview of Initiatives and Protocols (2009)</li> </ul>
Dragonflies and Damselflies	<ul style="list-style-type: none"> <li>• species dependent surveys conducted May to September</li> <li>• single season surveys conducted mid-June</li> </ul>	<ul style="list-style-type: none"> <li>• active searching</li> <li>• sweep net capture and release</li> </ul>	
Benthos	<ul style="list-style-type: none"> <li>• spring (April-May) or fall (Sept-Oct) (note inter-annual comparisons can only be made based on spring to spring or fall to fall datasets)</li> </ul>	<ul style="list-style-type: none"> <li>• Ontario Benthos Biomonitoring Network protocols</li> <li>• Ontario Stream Assessment Protocols</li> </ul>	<p>References:</p> <ul style="list-style-type: none"> <li>• Ontario Benthos Bio-monitoring Network protocol for invertebrates, Ver 1.0 May 2004  <a href="https://www.ec.gc.ca/Publications/845207E3-C9C9-4D7B-9B47-B41E7B990989/OntarioBenthosBiomonitoringNetworkProtocolManual.pdf">https://www.ec.gc.ca/Publications/845207E3-C9C9-4D7B-9B47-B41E7B990989/OntarioBenthosBiomonitoringNetworkProtocolManual.pdf</a></li> <li>• Ontario Stream Assessment Protocol for fisheries and benthos, MNR:  <a href="http://www.mnr.gov.on.ca/stdprodcons/ume/groups/lr/@mnr/@letsfish/documents/document/226871.pdf">http://www.mnr.gov.on.ca/stdprodcons/ume/groups/lr/@mnr/@letsfish/documents/document/226871.pdf</a></li> </ul>
Molluscs	<ul style="list-style-type: none"> <li>• June 1 to September 30, providing water temperatures are</li> </ul>	<ul style="list-style-type: none"> <li>• Protocols for collection and relocation of mussels (Mackie et</li> </ul>	<p>Notes</p> <ul style="list-style-type: none"> <li>• detailed information regarding habitat requirements and life history of target species is essential in determining the</li> </ul>

Natural Heritage Feature	Optimal Period for Field Inventory	Preferred Field Inventory Method	Notes and Related References
	greater than 16°C	al. 2008)	timing, phasing, target habitats, and methods of collection <ul style="list-style-type: none"> <li>appropriate search effort is critical in asserting species absence</li> </ul>
Water Temperature	<ul style="list-style-type: none"> <li>daily maximum temperature measured from July 1 to Sept 10</li> </ul>	<ul style="list-style-type: none"> <li>daily air temperature must exceed 24.5°C on sample day must be preceded by two days with daily air temperature above 24.5°C</li> </ul>	References: <ul style="list-style-type: none"> <li>Measuring Stream Temperature Using Data Loggers MNR (2010) <a href="http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@aquatics/documents/document/stdprod_068478.pdf">http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@aquatics/documents/document/stdprod_068478.pdf</a></li> <li>Thermostat ver 3 <a href="http://people.trentu.ca/nicholasjones/thermoStat_home.htm">http://people.trentu.ca/nicholasjones/thermoStat_home.htm</a></li> <li>Instruction Manual for Stream Temperature Analysis Tool and Exchange (STATE). Jones, N.E., and C. Chu. 2007. River and Stream Ecology Lab, Ontario Ministry of Natural Resources, Trent University, Ontario</li> </ul>
	<ul style="list-style-type: none"> <li>spot temperature measurements</li> </ul>	<ul style="list-style-type: none"> <li>sample day must be preceded by three days without rainfall that could affect baseflow in the sample watercourse</li> </ul>	

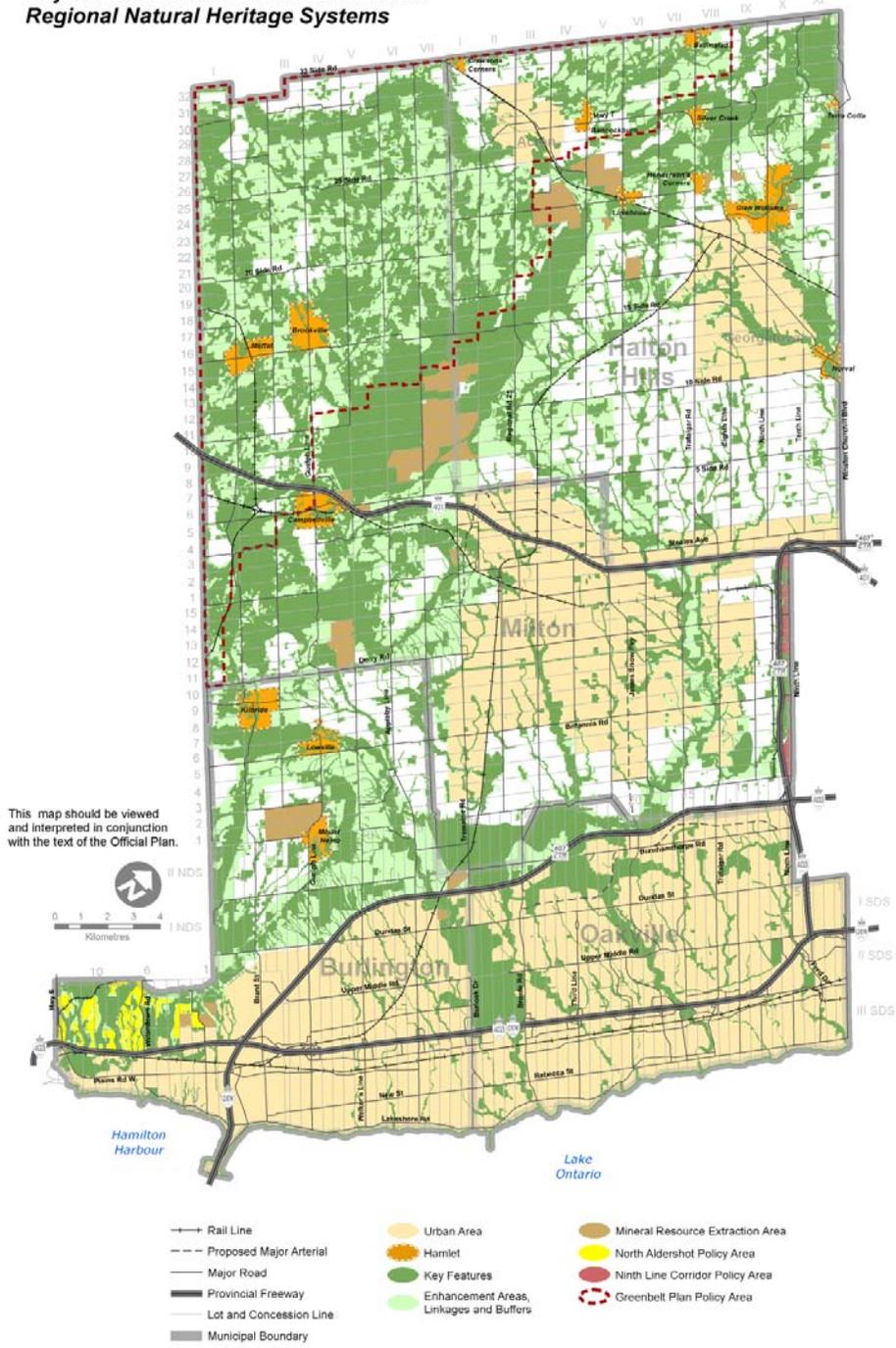
# Appendix F: Maps from ROPA 38

## Map 1



# Map 1G

**Map 1G**  
**Key Features within the Greenbelt and**  
**Regional Natural Heritage Systems**



December 16, 2009

## Appendix G: Potential Environmental Impacts

Environmental impacts associated with *development* may be characterised as irreversible, short term, construction related, long-term and cumulative. Impact analysis is to be based on the scientific literature available and should build on successful approaches that ensure long term protection of the RNHS based on a *systems approach* to EIA in environments undergoing *development*. The second edition of the MNR's Natural Heritage Reference Manual Chapter 13 Addressing Impacts of *Development* and *Site Alteration* should also be consulted when considering environmental impacts.

Examples of impacts that may be considered include, but are not limited to the following:

1. Fragmentation or reduction in the size of the RNHS;
2. Increase in the perimeter-to-area ratio of features within the RNHS;
3. Loss of ecological features and supporting functions of agricultural lands adjacent to the RNHS;
4. Alteration of natural disturbance cycles important to the ecological health and renewal of the RNHS, such as flooding, erosion, deposition, disease, and fire, etc.;
5. Loss or reduction in functional ecological linkage of the RNHS among natural features important for daily, seasonal and/or long term movement patterns of plants and animals;
6. Alteration of natural topography that results in impacts to the RNHS;
7. Ongoing or increased potential for human or domestic animal impacts on the RNHS, especially area-sensitive species, ground-nesting birds, small mammals, reptiles and amphibians;
8. Alteration of the quantity, quality, timing (hydroperiod) or direction of flow, of surface or groundwater resulting in impacts to the RNHS;
9. Alteration of the structure, functions or ecological interrelationships of natural habitat that sustains representative community associations or species populations.
10. Reductions in the size and diversity of species populations, or the health and reproductive capacity of species;
11. Removal of vegetation communities which are structural and/or functional element of the RNHS;
12. Erosion or compaction of soils, slope failure, or deposition of sediment;
13. Increased potential for the introduction of non-native species;
14. Occupancy of lands adjacent to the RNHS resulting in increased access, pets, night lighting, escape of horticultural plants, noise, dumping of waste, air pollution, water pollution, encroachment, increased presence of humans, etc.; and
15. Harmful Alteration, Disruption or Destruction (HADD) of fish habitat pursuant to the Canada Fisheries Act.
16. Potential environmental impacts associated with aquatic environments may include:
  - disruption or prevention of natural sediment transport regime;
  - severing the connection of a watercourse from its floodplain;
  - impairment or loss of fish passage through a watercourse;
  - negative changes to the health, composition, density or type of riparian vegetation;
  - negative changes to in-stream structure (e.g. overhanging banks, dynamic banks, hydraulic habitats that have formed over time, sand, gravel, and organic substrates);
  - Enclosure of watercourses in underground pipes;
  - excavation of on-line ponds;
  - excavation of off-line pond that could be a source of thermal or water quality pollution with respect to surface and/or groundwater resources; and
  - the lining of the banks or channel of any watercourse with hard materials.
17. Refer to Table C-1 in the NHRM (2010) for more examples of potential environmental impacts.

## Appendix H: Potential Mitigation Measures

Mitigation measures are intended to maintain the health, form and function of the RNHS and contribute to reducing or eliminating potential short or long term impacts from *development* on the RNHS. New strategies and methods for the mitigation of *development* impacts can be expected to continuously emerge, and as such proponents should refer to and cite recent scientific literature. Examples of mitigation measures may include but are not limited to the following:

1. Avoidance of natural features and functions;
2. Modifying or redesigning the proposal to reduce or eliminate impacts;
3. Dedication or transfer of natural areas to a public body;
4. Buffers and/or setbacks adequate to reduce impacts and preserve *ecological functions* along edges of natural features;
5. Measures to restore or enhance natural areas, features or functions onsite;
6. Installation of functional ecopassages for roads that cross natural areas to allow movement of resident plants and animals;
7. Construction timing restrictions to avoid critical periods such as fish spawning, herpetofauna breeding and hibernation periods, or bird breeding and nesting (May 1<sup>st</sup> to July 31<sup>st</sup>), animal migration and seasons when heavy construction equipment operating on exposed soils is most likely to cause soil erosion and siltation.
8. Effective temporary stormwater management and sediment control during construction;
9. Ministry of the Environment Enhanced permanent stormwater management facilities;
10. Innovative infiltration measures suitable for the site such as infiltration trenches, porous pavements, catchment cisterns, etc.;
11. Proper collection of groundwater elevation data that will allow proponents to design *development* in a way that will mitigate impacts to groundwater;
12. For waterways currently impacted by past human alteration wherever possible make every effort to:
  - “daylight” and restore waterways that currently exist in underground pipes;
  - remove human created impoundments that currently exist within watercourses; and
  - Rehabilitate hardened creek channels using natural channel design principles and techniques and Replace
13. Institute strategies to reduce salt application to roads that cross or are located adjacent to waterways;
14. Consider adoption of on-site stormwater management including green roofs;
15. Low impact development techniques;
16. Urban design guidelines that consider factors such as window treatments to prevent bird strikes, lighting that does not impact adjacent natural areas, street and lot orientation that provides additional separation from natural features;
17. Salvaging strategies for plants and animals that will be directly impacted by *development*;
18. Comprehensive ecological restoration plans;
19. Promotion of stewardship initiatives;
20. Detailed tree saving plans developed to maximize tree saving through careful adjustment of final *development* plans;
21. Installation of temporary and permanent fencing;
22. Posting securities for environmental damage repair; and
23. Promotion of public awareness through the development of homeowners’ guides and the creation and installation of information signage.

## Appendix I: Definitions

**AGRICULTURAL BUILDING:** is a building required for *agricultural uses* and/or *agricultural-related uses* as defined below.

**AGRICULTURAL USES:** means the growing of crops, including nursery and horticultural crops; raising of livestock; raising of other animals for food, fur or fibre, including poultry and fish; aquaculture; apiaries; agro-forestry; maple syrup production; and associated on-farm buildings and structures, including accommodation for full-time farm labour when the size and nature of the operation requires additional employment. PPS (2005)

**AGRICULTURAL-RELATED USES:** means those farm-related commercial and farm-related industrial uses that are small scale and directly related to the farm operation and are required in close proximity to the farm operation. PPS (2005)

**CENTRE FOR BIODIVERSITY** means an area that encompasses existing natural heritage features and associated enhancement areas and is of sufficient size, quality and diversity that it can support a wide range of native species and *ecological functions*, accommodate periodic local extinctions, natural patterns of disturbance and renewal and those species that are area sensitive, and provide sufficient habitat to support populations of native plants and animals in perpetuity.

ROPA 38

**CONSERVATION AUTHORITY** means Conservation Halton (Halton Region Conservation Authority) or Credit Valley Conservation (Authority) or the Grand River Conservation Authority.

**CUMULATIVE IMPACT** means the effect on the physical, natural, visual and cultural heritage features of the environment resulting from the incremental activities of *development* over a period of time and over an area. All past, present and possible feature activities are to be considered in assessing cumulative impact. ROPA 38.

**DEVELOPMENT** means the creation of a new lot, a change in land use, or the construction of buildings and structures, any of which requires approval under the Planning Act, or that are subject to the Environmental Assessment Act, but does not include:

The construction of facilities for transportation, infrastructure and utilities used by a public body; Activities or works under the Drainage Act, or The carrying out of agricultural practices on land that was being used for *agricultural uses* on the date the Greenbelt Plan 2005 came into effect

ROPA 38

**ECOLOGICAL AND ENVIRONMENTAL ADVISORY COMMITTEE (EEAC)** The Ecological and Environmental Advisory Committee advises and assists the Region with respect to the management and conservation of the natural environment of Halton. (Halton Region Website [www.halton.ca](http://www.halton.ca))

**ECOLOGICAL FUNCTION** means the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes (including hydrologic functions and biological, physical, chemical and socio-economic interactions). PPS (2005)

**ENDANGERED SPECIES** means a species that is listed or categorized as an “Endangered Species” on the Ontario Ministry of Natural Resources’ official species at risk list, as updated and amended from time to time. PPS (2005)

ENVIRONMENTALLY SENSITIVE AREAS means land and water areas within the Greenbelt and Regional Natural Heritage Systems containing natural features or *ecological functions* of such significance as to warrant their protection in the best long term interests of the people and environment of Halton. While the Region maintains mapping showing the general boundaries of the ESAs, precise boundaries of ESAs are to be established through an Environmental Impact Assessment (EIA). In designating ESAs, the Region will give specific regard to maintaining the long term viability of existing agricultural operations. ROPA 38

ESCARPMENT BROW means the uppermost point of the Escarpment slope or face. It may be the top of a rock cliff, of where the bedrock is buried, the most obvious break in slope associated with the underlying bedrock. ROPA 38

EVALUATED WETLAND means a *wetland* that has been evaluated using the criteria outlined in the Ontario Wetland Evaluation System

FISH means fish, which as defined in S.2 of the Fisheries Act, c. F-14, as amended, includes fish, shellfish, crustaceans, and marine animals, at all stages of their life cycles. PPS (2005)

FISH HABITAT as defined in the Fisheries Act, c. F-14, means spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes. PPS (2005)

FLOOD PLAIN means the area, usually lowlands, adjoining the channel of a river, stream, or watercourse which has been or may be covered by flood water during a regional flood or a one in one hundred year flood, whichever is greater. ROPA 38

GROUND WATER FEATURE: refers to water-related features in the earth's subsurface, including recharge/discharge areas, water tables, aquifers and unsaturated zones that can be defined by surface and subsurface hydrogeologic investigations. PPS (2005)

HAZARD LANDS means properties or lands that could be unsafe for development due to naturally occurring processes. Along the shorelines of Lake Ontario and Burlington Bay, this means the land, including that covered by water, between a defined offshore distance or depth, and the furthest landward limit of the flooding, erosion or dynamic beach (areas of unstable accumulations of shoreline sediments) hazard limits. Along river and stream systems, this means the land, including that covered by water, to the furthest landward limit of the flooding or erosion hazard limits. ROPA 38

HYDROLOGIC FUNCTION means the functions of hydrological cycle that include the occurrence, circulation, distribution, and chemical and physical properties of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere, and water's interaction with the environment including its relations to living things. PPS (2005)

KEY HYDROLOGIC FEATURES means a key hydrologic feature as describe in section 3.2.4 of the Greenbelt Plan. "Key hydrologic features include;

- Permanent and intermittent streams;
- Lakes (and their littoral zones);
- Seepage areas and springs; and
- Wetlands

Greenbelt Plan (2005)

KEY NATURAL HERITAGE FEATURES means a key natural heritage features as described in section 3.2.4 of the Greenbelt Plan. Key natural heritage features include:

- Significant habitat of endangered species, threatened species and special concern species
- Fish habitat
- Wetlands
- Life Science Areas of Natural and Scientific Interest (ANSIs);
- Significant valleylands;
- Significant woodlands
- Significant wildlife habitat
- Sand barrens, savannahs and tallgrass prairies and
- Alvars"

Greenbelt Plan (2005)

NATURAL ENVIRONMENT means the air, land, water, plants, and animals, or any combination or part thereof.

ROPA 38

NATURAL HERITAGE SYSTEM means a system made up of *natural heritage features and areas*, linked by natural corridors which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include lands that have been restored and areas with the potential to be restored to a natural state. PPS (2005)

NEGATIVE IMPACTS means

- a) in regard to policy 2.2 (of the PPS 2005), degradation to the *quality and quantity of water, sensitive surface water features and sensitive ground water features*, and their related hydrologic functions, due to single, multiple or successive *development or site alteration* activities.
- b) in regard to *fish habitat*, the harmful alteration, disruption or destruction of *fish habitat*, except where, in conjunction with the appropriate authorities, it has been authorized under the *Fisheries Act*, using the guiding principle of no net loss of productive capacity; and
- a) c) in regard to other *natural heritage features and areas*, degradation that threatens the health and integrity of the natural features or *ecological functions* for which an area is identified due to single, multiple or successive *development or site alteration activities*. PPS (2005)

NORMAL FARM PRACTICE means a practice that:

- a) is conducted in a manner consistent with proper and acceptable customs and standards as established and followed by similar *agricultural operations* under similar circumstances, or
- b) makes use of innovative technology in a manner consistent with proper advanced farm management practices.

If required, the determination of whether a farm practice is a *normal farm practice* shall be in accordance with the provision of the Farming and Food Production Protection Act, including the final arbitration on normal farm practices by the Farm Practices Protection Board under the Act. ROPA 38

PROVINCIALY SIGNIFICANT AREAS OF NATURAL AND SCIENTIFIC INTEREST means areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study, or education. PPS (2005)

PROVINCIALY SIGNIFICANT WETLANDS means wetlands so classified by the Ministry of Natural Resources based on the Ontario wetland evaluation System 1994 Southern Manual, as amended from time to time.

ROPA 38

RECOVERY STRATEGY

Recovery strategies provide science-based recommendations for the Minister of Natural Resources and other interested parties on the protection and recovery of endangered and threatened species.

REGULATORY FLOOD means the approved standard(s), a regional flood or a one in one hundred year flood, used in a particular watershed to define the limit of the flood plain for regulatory purposes.

SENSITIVE: in regard to *surface water features* and *ground water features*, means areas that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants. PPS (2005)

SIGNIFICANT WOODLAND means a *Woodland* 0.5 ha or larger determined through a Watershed Management Plan, a Subwatershed Study or a site-specific Environmental Impact Assessment to meet one or more of the four following criteria:

- (1) The Woodland contains forest patches over 99 years old,
- (2) The patch size of the Woodland is 2 ha or larger if is located in the Urban Area, or 4 ha or larger if it is located outside the Urban Area but below the Escarpment Brow, or 10 ha or larger if it is located outside the Urban Area but above the Escarpment Brow
- (3) The Woodland has an interior core area of 4 ha or larger, measured 100m from the edge or
- (4) The Woodland is wholly or partially within 50m of a major creek or certain headwater creek or within 150m of the escarpment brow."

ROPA 38

SINGLE DETACHED DWELLING means a separate building containing not more than one dwelling unity and may include a chalet, cottage, or mobile home. (ROPA 38)

SITE ALTERATION means activities, such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of a site. PPS (2005)

#### SPECIES OF SPECIAL CONCERN

A species with characteristics that make it sensitive to human activities or natural events. MNR Species at Risk website (2012).

#### SPECIES AT RISK IN ONTARIO

A "species at risk" is any naturally-occurring plant or animal in danger of extinction or of disappearing from the province. Once classified as "at risk", they are added to the Species at Risk in Ontario (SARO) List. MNR Species at Risk Website (2012)

#### SRANK

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. By comparing the global and provincial ranks, the status, rarity, and the urgency of conservation, needs can be ascertained. The NHIC evaluates provincial ranks on a continual basis and produces updated lists at least annually. Natural Heritage Information Centre Website (2012)

SX Presumed Extirpated—Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SH Possibly Extirpated (Historical)—Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it

had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.

**S1 Critically Imperilled**—Critically imperilled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.

**S2 Imperilled**—Imperilled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

**S3 Vulnerable**—Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

**S4 Apparently Secure**—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

**S5 Secure**—Common, widespread, and abundant in the nation or state/province.

**SNR Unranked**—Nation or state/province conservation status not yet assessed.

**SU Unrankable**—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

**SNA Not Applicable** —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

**S#S# Range Rank** —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

**SURFACE WATER FEATURE** refers to water-related features on the earth's surface, including headwaters, rivers, stream channels, inland lakes, seepage areas, recharge/discharge areas, springs, wetlands, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics. PPS (2005)

**SYSTEMS APPROACH** means a comprehensive approach to natural heritage system planning that considers the importance of maintaining and protecting ecological features in the environment (such as *woodlands*, *wetlands* and *watercourses*) *ecological functions* of the environment (such as water storage and water quality enhancement by wetlands, winter deer yards provided by cedar *woodlands*, amphibian breeding habitat in ephemeral forest ponds, etc.) and ecological interactions that occur over varying scales of time and space (such as animal predation and herbivory, the daily, seasonal and long term movement patterns of plants and animals, and the role of ecological disturbance mechanisms such as fire, wind, water and disease).

**THREATENED SPECIES** means a species that is listed or categorized as a "Threatened Species" on the Ontario Ministry of Natural Resources official species at risk list, as updated and amended from time to time. PPS (2005)

TREE means any species of woody perennial plant, including its root system, which has reached or can reach a height of at least 4.5m above ground at physiological maturity. ROPA 38

UNEVALUATED WETLAND means a wetland that has not been evaluated using the criteria outlined in the Ontario Wetland Evaluation System

WETLANDS means lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case, the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens. Periodically soaked or wet lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition. ROPA 38

WILDLIFE HABITAT means areas where plants, animals and other organisms live and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats or concern may include areas where species concentrate at a vulnerable point in their annual or life cycle, and areas which are important to migratory or non-migratory species. PPS (2005)

WOODLAND means land with at least: 1000 *trees* of any size per ha, or 750 *trees* over 5 cm in diameter per ha, or 500 *trees* over 12 cm in diameter per ha, or 250 *trees* over 20 cm in diameter per ha but does not include an active cultivated fruit or nut orchard, a Christmas tree plantation, a plantation certified by the Region, a tree nursery, or a narrow linear strip of *trees* that define a laneway or a boundary between fields. For the purpose of this definition, all measurements of the *trees* are to be taken at 1,37 meters from the ground and *trees* in regenerating fields must have achieved that height to be counted. ROPA 38



