Conservation Halton's Guidelines for Ecological Studies

August 2017

Conservation Halton

Introduction

An Ecological Study creates a baseline inventory of ecological data for a given study area. Conservation Halton's Guidelines for Ecological Studies outline expectations for Ecological Studies required by Conservation Halton. The policies of Conservation Halton's Ontario Regulation 162/06 may trigger the need for an Ecological Study. They provide clear and consistent direction to proponents in their study preparation. These Guidelines will also be used to facilitate Conservation Halton's review of applications made under the *Environmental Assessment Act, Aggregate Resources Act* and the Niagara Escarpment Plan and in the review of technical studies associated with other studies or plans such as Subwatershed Studies and the Greenbelt Plan.

Conservation Halton will use municipal Environmental Impact Study/Assessment Guidelines for the review of applications under the *Planning Act* where they exist.

List of Abbreviations

The following lists the various abbreviations used within this document:

ANSI	Area of Natural and Scientific Interest	**ARL**	Approximate Regulation Limit
CA	Conservation Authority	**CH**	Conservation Halton
CoC	Coefficient of Conservation	**CoW**	Coefficient of Wetness
CVC	Credit Valley Conservation Authority	**ELC**	Ecological Land Classification
ES	Ecological Study	**ESA**	Environmentally Sensitive/Significant Area
JESA	Jefferson Salamander	**MNRF**	Ministry of Natural Resources and Forestry
NHIC	Natural Heritage Information Centre	**NHRM**	Natural Heritage Reference Manual
NHS	Natural Heritage System	**OSAP**	Ontario Stream Assessment Protocol
OWES	Ontario Wetland Evaluation System	**PPS**	Provincial Policy Statement
PSW	Provincially Significant Wetland	**QA/QC**	Quality Assurance/Quality Control
S1-S3	Provincial S-Ranks	**SAR**	Species at Risk
SWH	Significant Wildlife Habitat	**SWHTG**	Significant Wildlife Habitat Technical Guide
TRCA	Toronto and Region Conservation Authority	**VES**	Visual Encounter Survey

Ecological Study Requirements

Table 1 outlines the requirements for an Ecological Study (ES). Pre-consultation is strongly encouraged so that study requirements for all review agencies are clearly outlined. There may be some opportunity to scope requirements. This will be discussed and agreed to during the pre-consultation. As part of the pre-consultation process, a coordinated site visit with review agencies may be required. After pre-consultation, the proponent is required to submit a draft Terms of Reference, for approval by the review agencies prior to the completion of field inventories.

Table 1: Contents of the ES

SECTION	CONTENT
Introduction	Include a discussion on the need for an ecological study and include a list of the review agencies involved in approving the Terms of Reference.
Describe the Surrounding Natural Environment	On a map (or maps), provide the following items based on existing available information from agencies (e.g., CAs, MNRF, etc.): • Limit of Approximate Regulation Limit (ARL) as defined by Conservation Halton, including all applicable hazards • Provincially Significant Wetlands (PSW) as well as any other wetlands as defined by the Ministry of Natural Resources and Forestry (MNRF), Conservation Halton or others • Limits of the Natural Heritage System (NHS) or key features of the PPS, as determined by the applicable agency • Environmentally Sensitive/Significant Areas (ESAs), where applicable • Areas of Natural and Scientific Interest (ANSIs) as defined by Ministry of Natural Resources and Forestry • Vegetation communities, evaluated using Ecological Land Classification • Potential Significant Wildlife Habitat • Water features such as headwaters drainage features, watercourses, lakes, ponds, springs and seeps, and recharge and discharge areas etc. • Contours at 1 metre intervals or less where available
Biophysical Inventory and Characterization of Site	Include a recent (i.e., completed within 5 years) biophysical inventory to describe the surrounding environment as well as the adjacent lands 120m from the edge of the property or other defined relevant area. Include a review of secondary sources (compiling information from existing documents), and either a scoped field inventory, or a detailed inventory, determined through pre-consultation with the review agencies. The ES should explain and justify the level of investigation undertaken, including reasons for excluding typical surveys not conducted for a given project, as part of the scoping exercise. Table 2 Field Survey Requirements of the ES (below), provides specific direction on the various inventory protocols and expectations for the study. The accompanying text should document the methodologies used for any field studies that were necessary, including a table outlining purpose of the study, the date, time of visits, and information about the qualified professional (e.g., ecologist, biologists, hydrogeologists, etc.) carrying out the study, the protocols used and the weather during the surveys. Discuss any property access limitations. Summarize the results of the biophysical inventory in the main text of the report, with the full results included as an appendix to the document. To be complete, all field data sheets should be included in this appendix. Include all calibration or QA/QC forms used in the preparation of the report, as applicable. Include maps showing the survey locations (with survey types clearly differentiated), the results of the ELC field work, the limit of the NHS, and any other relevant information collected during the field assessment. The location of Species at Risk (SAR) **should not be included in public reports due to the sensitivity of the data**, however the details on SAR finding should be filed with the Natural Heritage Information Centre (NHIC) and Conservation Halton. Assess and evaluate Significant Wildlife Habitat as per the PPS, NHRM, Significant Wildlife Habitat Technical Guide and applicable Ecoregion Criteria, with reference to the Significant Wildlife Habitat Mitigation Support Tool. Maps should clearly identify all ecological aspects on recent air photos, including the following: • Conservation Halton's Approximate Regulation Limits (ARL)and the features regulated by CH as refined and approved by CH though the ES or other studies.

SECTION	CONTENT
	• PSWs, Provincially Significant Coastal Wetlands and other regulated wetlands as delineated by Conservation Halton and/or the Ministry of Natural Resources and Forestry (MNRF) on the site • Hydrologic features, temperature classification, and catchment areas. • Regional NHS/ESAs/other protected areas identified in Official Plans, as determined on site by the relevant agency. For those municipalities without a defined NHS, identify core features not noted above but which comprise a NHS. • Areas of Natural and Scientific Interest (ANSI). • Significant Woodlands as assessed, delineated and approved by the relevant agency • Any identified Significant Wildlife Habitat, including Candidate or Unconfirmed SWH based on the completed field surveys, taking into consideration habitat and ecological functions in addition to species. Site visits with approval staff may be required. • Habitat of any SAR, including federal, provincial, S1-S3, regionally rare or locally rare species (should be forwarded to Conservation Halton under separate cover). • Fish habitat, including seasonal habitat such as ephemeral streams. • Areas of groundwater discharge and recharge, headwater drainage features assessment, and other hydrogeological features such as springs and seeps, Intake Protection Zones, Wellhead Protection Areas, etc. • The results from the biophysical survey such as ELC communities etc. • Wildlife movement corridors and connections. • Physiography. • Soil types and drainage characteristics. In addition, the mapping should include a legend, north arrow, scale and date of map production. Maps should be legible and provided at a scale appropriate for the site and the report.
Monitoring	Outline the monitoring protocol, if required. The need for monitoring the site will be determined on a case-by-case basis and depends on the sensitivity of the NHS and/or feature the proposed development is adjacent to and the projected impacts/mitigation proposed. To be developed through the consultation process. For more detailed information on the monitoring protocols and methodology, please refer to Conservation Halton's Ecological Monitoring Protocols Document (February 2017).

Conservation Halton data can be obtained by submitting a Digital Information Request Form, available at www.conservationhalton.ca. A fee may be applicable and if so, must be paid before the data is released.

Table 2, Field Survey Requirements of the ES outlines the survey methodology and protocols to follow to complete an ES. Please note that the review agencies may require additional surveys not listed in this table, on a site-specific basis or as a result of the initial inventory results.

Table 2: Field Survey Requirements of the ES

Y/N	Survey	Optimal Inventory Period	Methodology and Protocols	Notes
☐	Ecological Land Classification (ELC)	• May to early June, July to September	• ELC System for Southern Ontario First Approximation (Lee et al., 1999) or as updated from time to time	• Classification to the Vegetation Type. • Should the community not be available within the Guide, please use the community series level and provide notation as to why this approach is used. • Include all data sheets (e.g., soils, disturbance, etc.). • Mapping should clearly differentiate between the polygons.
☐	Wetland Evaluation and Delineation	• Evaluation: variety of seasons to ensure the full evaluation occurs as per OWES • Delineation: Late spring to early fall, before the first hard frost with CH and potentially MNRF staff	• Ontario Wetland Evaluation System (OWES) for Southern Ontario (3rd Edition, 2014 or as updated from time to time)	• Detailed inventory and assessment including vegetation, mammals, birds, reptiles, amphibians, fish, insects, benthos etc., using specific protocol noted in this table. • Ensure sufficient time for MNRF to process.
☐	Vegetation Inventory	• Spring ephemerals: May to early June • Summer: mid-June to August • Fall: September to October (weather dependent, may alter due to frost)	• Full vegetation species list to be provided, can be combined with ELC • Details on species such as their level of invasiveness, CoC, CoW, species rarity etc., should be included	Species rarity to be based on: • Species at Risk in Ontario list (MNRF) • S-Rank using the Natural Heritage Information Centre species lists • Local rarity using Halton Natural Areas Inventory (2006) and Hamilton Natural Areas Inventory (2014)
☐	Birds	• Breeding birds: May 24 to July 10 • Migrants and over wintering birds: species and site specific • Owls: November to April (species dependant) • Marsh birds: April to July (species dependant)	Habitat Dependent: • Ontario Breeding Bird Atlas protocols • Marsh Monitoring Program Protocols • Area searches and wandering transects	• Point counts required for monitoring. • Generally consists of two survey visits spaced approximately 10 days apart, spread evenly over the season.
☐	Amphibians	• Early spring – summer (species dependent) • Active Visual Encounter Surveys (VES) on rainy late March – early April nights	• Bird Studies Canada Great Lakes Marsh Monitoring Program (including 3 separate spring/early summer seasonal survey timing windows). • Active Visual Encounter Searches (VES) for salamanders	• If sampling in urban areas, point counts longer than three minutes may be recommended • Trapping may be required for JESA, if known or suspected, and as required and permitted by the MNRF.

Y/N	Survey	Optimal Inventory Period	Methodology and Protocols	Notes
☐	Reptiles	• April – June • Late Summer/Fall: Late August to October for migration or congregating species • Weather dependent	• Species and habitat dependent • May include cover board surveys, spring emergence surveys etc. • Consultation recommended ahead of work	• Provide a description of methods in appendices.
☐	Butterflies	• June – August • July (peak) • Weather dependent	• Species and habitat dependent • Consultation recommended ahead of work	• Provide a description of methods in appendices.
☐	Dragonflies and damselflies	• June – August • July (peak) • Weather dependent	• Species and habitat dependent • Consultation recommended ahead of work	• Provide a description of methods in appendices.
☐	Mammals	• Species dependent	• Sightings and tracking • Small mammal trapping depending on the site	• Provide a description of methods in appendices.
☐	Bats	• During leaf off season for cavity tree surveys • Extent of survey to be determined during pre-consultation	• Species and habitat dependent • SAR Bats may require different surveys than SWH bats. • MNRF Guidelines, where applicable • Consultation recommended ahead of work	• Provide a description of methods in appendices.
☐	Benthic Invertebrates	• Spring	• Using Ontario Benthos Biomonitoring Network Protocol	• Identify to family or lowest practical level for analysis.
☐	Fish Survey and Fish Habitat	• Late April to June for intermittent creeks • June – early Sept. for residents • Migration surveys in April/May and/or Sept./Nov.	• Using Ontario Stream Assessment Protocol [OSAP(Section 3)]. • Temperature analysis as per: Chu *et al.* (2009). Evaluation of a Simple Method to Classify the Thermal Characteristics of Streams Using a Nomogram of Daily Maximum Air and Water Temperatures. *North American Journal of Fisheries Management* V29:1605–1619.	• Observations (mapping) should include the following: flow, channel form, riparian characteristics, anthropogenic and other disturbances, enhancement opportunities, substrate, groundwater indicators, temperature, instream habitat features and structures.
☐	Water Quality	• Spring to fall	• Dry and wet conditions, sampling 3 times for each	
☐	Drainage patterns, headwater features and watercourses	• Multiple assessments: Spring freshet/rain events, late April-May, July-August • Aquatic habitat assessment in late April-May	• Using OSAP to identify the watercourse • Evaluation, Classification and Management of Headwater Drainage Features, prepared by CVC/ TRCA (2014) • Secondary Source and ground truthing of the site	