NATURAL ENVIRONMENT REPORT
LEWIS PIT EXPANSION

January 27, 2022

West Part Lot 15, Concession 9
Township of Springwater (formerly Vespra)

Prepared for: Galibier Materials Inc.

ROOTS ENVIRONMENTAL

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1 INTRODUCTION

Roots Environmental ('Roots') has been retained to complete a Natural Environment Report (NER) for a site located at 2857 Seadon Road in the Township of Springwater. The NER is provided to support planning and Aggregate Resources Act (ARA) applications to permit expansion of the existing licensed Lewis Pit (ARA License # 3560) for a Pit Above Water pit.

Development of the site for an aggregate pit will require a Zoning By-Law Amendment (ZBA) and Official Plan Amendment (OPA) to comply with the Township of Springwater Official Plan.

This NER will follow provincial standards provided Section 2.2 of the "*Aggregate resources of Ontario standards: A compilation of the four standards adopted by Ontario Regulation 244/97 under the Aggregate Resources Act*" (Government of Ontario August 2020). The purpose of the NER is to identify the presence of any natural heritage features and areas on the site or adjacent lands of 120 metres, assess any negative impacts, including to their ecological functions, and identify any proposed preventative, mitigative or remedial measures.

An Environmental Impact Statement (EIS) is required to support the ZBA and OPA. Policies for the preparation of an EIS are provided in Section 16.2.4 of the Township of Springwater Official Plan (December 2018). To avoid duplication of reports, the NER and EIS will be amalgamated into this singular report. From herein, this report will be referred to as the 'NER'.

1.1 Site Location

The site is located in the West Part Lot 15, Concession 9 in the Township of Springwater as shown on *Figure 1 – Site Location*. The site borders Seadon Road to the south, George Johnston Road to the west, the existing Lewis Pit to the north and vacant woodlands to the east.

The site has a total area of 21.1 ha. The proposed licensed area will include the entire area of the site. The proposed extraction area is 17.5 ha.

The Study Area, as shown on *Figure 2- Study Area*, for this project includes the entire subject property as shown on Figure 1 and adjacent lands of 120 metres.

1.2 Proposed Development

The proposed development for the subject site is an expansion of the existing licensed Lewis Pit for a Pit Above Water within a licensed area of 21.1 ha and an extraction area of 17.5 ha. The pit extraction will include four phases, proceeding from the north end of the site in a southerly direction.

Rehabilitation will occur progressively as extraction moves through the site phases. Two areas of rehabilitation will be completed in the extraction area- Reforestation (12.2 ha) and Field Meadow/Low Density Re-forestation (7.3 ha). A wildlife corridor of existing vegetation will be maintained during the first three phases, after which, rehabilitation will occur in Phases 1, 2 and 3 to maintain the corridor during extraction of Phase 4.

Legend

Expansion Lands

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Figure 1
Site Location

Galibier Materials Inc.
West Part Lot 15, Concession 9
Township of Springwater

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N

1 0.5 0 1 2 3 4 Kilometers

Legend

- Expansion Lands
- Adjacent Lands (120 m)

N

0.1 0.05 0 0.1 0.2 0.3 0.4

Kilometers

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Figure 2
Study Area

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2 RELEVANT ENVIRONMENTAL POLICIES

A review of relevant environmental legislation, plans, and policies will be included in this NER. This review will include the Provincial Policy Statement, Growth Plan for the Greater Golden Horseshoe, County of Simcoe Official Plan, Township of Springwater Official Plan, and *Endangered Species Act*.

Provincial standards require that NER identify any natural heritage systems that are present in the study area as identified by the municipality or a Provincial Plan (i.e. Growth Plan).

3 METHODOLOGY

Preparation of the NER involves a desktop review of available information, field investigations and consultation with applicable agencies.

The following provides a summary of tasks completed for the NER.

3.1 Consultation with Agencies

Consultation with agencies was initially started in 2013, with subsequent consultation between then and 2020 to confirm requirements for the NER and Species At Risk (SAR) listed under the *Endangered Species Act* (ESA) identified during field investigations. The following provides a summary of that consultation.

3.1.1 MNDMNRF/MECP

Initial consultation with the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) was completed in 2013 to confirm terms of reference for completion of field surveys on the site. As a result of field surveys in 2013, SAR were identified and subsequent consultation with MNDMNRF occurred to determine requirements under the ESA for development of the site. This consultation continued through 2014.

In 2020, consultation was re-initiated with the Ministry of Conservation, Environment and Parks (MECP) who assumed responsibility of enforcement of the ESA in 2019. An updated terms of reference for the NER was provided to MECP, who provided comments and guidance on requirements of the ESA. Email correspondence between Roots and MECP is provided in Appendix A. For the protection of sensitive SAR found on site, those species' names have been redacted in the emails.

3.1.2 Nottawasaga Valley Conservation Authority

Consultation with the Nottawasaga Valley Conservation Authority (NVCA) was completed in 2013 and updated in 2020. A term of reference for the NER was provided and accepted by NVCA. The NVCA correspondence is included in Appendix A.

3.2 Desktop Review

A desktop review was completed to identify previously known natural features and occurrences of rare species or SAR in the Study Area. Sources included the following:

- The Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) Make A Map: Natural Heritage Areas;
- County of Simcoe interactive mapping;

- Township of Springwater Official Plan;
- Ontario Nature Reptile and Amphibian Atlas; and
- Atlas of Breeding Birds of Ontario.

3.3 Field Investigations

Field investigations on the subject property were completed by Skelton, Brumwell & Associates Ltd. (SBA) from 2013-2018. Roots was retained in 2019 by Galibier Materials Inc. and assumed responsibility for the project. Site investigations were continued from 2019-2021 based on the agreed upon Terms of Reference for the NER. Table 1 below provides a summary of dates and tasks completed.

Table 1: Summary of Surveys

Task	Survey Dates	Personal
Breeding Bird Surveys	June 2, 2013 June 25, 2013 June 3, 2020 July 2, 2020	Kyle Fleming
Vascular Plants Ecological Land Classification	May 14, 2013 July 26, 2013 September 12, 2013 May 25, 2020 August 10, 2020 September 17, 2020	Kyle Fleming
Whip-poor-will	June 17, 2013 June 4, 2020 June 8, 2020 July 2, 2020	Kyle Fleming
Bat Cavity/Snag Roost Survey	April 21, 2016 April 6-7, 2020	Kyle Fleming
Butternut Survey/Assessment	August 19, 2013 July 20-21, 2020	Kyle Fleming

3.3.1 Vascular Plants

Vascular plant surveys were completed in the spring, summer and fall of 2013 and 2020 using roving transects through all habitats and areas planned for extraction. Particular attention was paid during field investigations for rare species and Species at Risk listed in the Ontario *ESA*. Incidental observations were also completed during other surveys on site.

The significance of vascular plants sampled was assessed based on the Natural Heritage Information Centre's (NHIC) rankings (Srank) for provincial rarity.

3.3.2 Vegetation Communities

Vegetation communities were identified using the Ecological Land Classification (ELC) for Southern Ontario, First Approximation (Lee et al., 1998). Polygons were delineated using aerial photography, field sampled and classified into the most appropriate vegetation type. The polygons were identified based on vegetative cover, soils and landscape features.

The significance of the vegetation communities was assessed based on the Natural Heritage Information Centre's (NHIC) provincial rankings where applicable.

3.3.3 Breeding Birds

Surveys for breeding bird species were completed in 2013 and 2020. These surveys were completed using a roving transect to ensure all ELC ecosites were visited.

The significance of species detected during surveys has been assessed based on the Natural Heritage Information Centre's (NHIC) provincial rankings.

3.3.4 Species At Risk

Dedicated surveys were completed for SAR listed under the ESA from 2013-2020 per the agreed upon terms of reference for the NER with MNRF and MECP. The following surveys were completed. Survey information for sensitive species are not included for their protection. A separate addendum to the NER will be completed to outline surveys for this sensitive species.

3.3.4.1 WHIP-POOR-WILL

Surveys for the threatened Eastern Whip-poor-will (*Antrostomus vociferus*) were completed in 2013 and 2020. These surveys followed protocols in the MNRF (Kemptville) "Whip-poor-will Survey Instructions" (2015), which were adapted for this site. The surveys included:

- Three surveys from May-June during the breeding season.
- Begin each survey at least 30 minutes after sunset and end no later than 15 minutes before sunrise.
- Surveys conducted when the moon is above the horizon and not obscured by clouds.
- Conducted during the appropriate phase of the lunar cycle, specifically when 50% or more of the visible moon face is illuminated and clearly visible.
- The weather conditions must be calm to light winds, no precipitation and temperatures above 10°C.

Two stations were surveyed in the northwest and southeast parts of the site within 120 metres as shown on *Figure 3- Survey Locations*.

3.3.4.2 BATS (MYOTIS SP.)

A snag/cavity tree survey was completed in 2020 through all areas of suitable habitat to determine presence of potential roost trees on the site for endangered bat species (*Myotis* sp.). *Figure 3- Survey Locations* illustrates the locations of all stations surveyed.

Based on the results of the snag/cavity survey and consultation with MECP, acoustic monitoring of potential bat roost habitat was not required provided mitigation measures were implemented to reduce direct harm to resident bats. Further analysis of bat habitat is provided in Section 4 and 5 of this report.

3.3.4.3 BUTTERNUT

Surveys for the endangered Butternut tree (*Juglans cinerea*) were completed in 2013 and 2020. These surveys included dedicated transects through all habitats and areas of the site, and incidental observations of any butternut during other surveys.

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Figure 3
Survey Locations

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Any trees found were recorded with GPS coordinates (UTM), flagged, numbered and assessed using MECP protocols in the "Butternut Assessment Guidelines" (Amended December 2014 V2).

The assessments completed in 2020 were not submitted to MECP as no butternut trees were planned for removal and no removal of habitat was planned adjacent to these trees. This assessment is to be used as a baseline for future assessments of these trees as extraction moves into phases of the pit containing butternut trees. Further information on butternut trees assessed in 2020 and future surveys is included in Section 4 and 6 of this report.

3.3.5 Incidental Wildlife Observations

Incidental observations were made from 2013-2021 for mammals and herptiles (amphibians and reptiles) during field investigations through observations of physical evidence (scats, tracks) and for shelter, feeding and breeding sites (e.g. vernal pools, rock piles, etc.).

3.3.6 Aquatic Habitats

No aquatic features were identified on site during the desktop review and field surveys completed from 2013-2021. No aquatic habitat assessments were undertaken. Available mapping has been utilized for any aquatic features (including wetlands) within 120 metres of the site.

4 EXISTING CONDITIONS

4.1 Desktop Review

4.1.1 MNRF NHIC Make-A-Map: Natural Heritage Areas

A search was completed using the MNRF NHIC Make-A-Map: Natural Heritage Areas online geographic query tool for occurrence squares 17NK9517, 17NK9516, 17NK9617 and 17NK9616. Occurences will include those beyond the subject property and on habitats suitable to those species.

This review found occurrences of the following species at risk or rare species:

- Bobolink (*Dolichonyx oryzivorus*) (Threatened) (THR);
- Silver Lamprey (*Ichthyomyzon unicuspis* pop .1) (Special Concern) (SC);
- Northern Brook Lamprey (*Ichthyomyzon fossor)* (SC);
- Eastern Meadowlark (*Sturnella magna*) (THR);
- Butternut (Endangered) (END);
- Blanding's Turtle (*Emydoidea blandingii*) (THR);
- Wood Thrush (*Hylocichla mustelina*) (SC); and
- Restricted Species.

The results of this query are included in Appendix B.

No other features (i.e., wetlands, ANSI's) were identified in the MNRF mapping and query.

4.1.2 County of Simcoe Interactive Mapping/Official Plan

County of Simcoe Interactive Mapping (https://maps.simcoe.ca/public/) found no natural heritage features (i.e. wetlands, watercourses, ANSI's) on site or within 120 metres.

The subject property is identified as Settlement Area in Schedule 5.1 of the County of Simcoe Official Plan.

4.1.3 Township of Springwater Official Plan

The site is designated Agriculture in Schedule A-12- Land Use (Snow Valley) with a Natural Heritage (Environmental Protection) Category 2 overlay in Schedule B of the Township of Springwater Official Plan (December 2018).

4.1.4 Ontario Nature Reptile and Amphibian Atlas

A geographic query of occurrence square 17NK91 was completed using the Ontario Natural Reptile and Amphibian Atlas for observations of species collected from 1970-2019. Occurrences will include those beyond the subject property and on habitats suitable to those species.

A summary of the search is included in Appendix B. Three SAR were found in the search, being the Blanding's Turtle (THR), Snapping Turtle (*Chelydra serpentina*) (SC), and Massasauga Rattlesnake (*Sistrurus catenatus)* (THR). Other species noted in the search are common to Ontario. An analysis of habitat potential for these significant species is provided in Section 5.

4.1.5 Atlas of Breeding Birds of Ontario

A geographic query of occurrence square 17NK91 was completed using the Atlas Breeding Birds of Ontario for observations of species collected from 2001-2005. It is noted that these occurrence squares encompass a large area that includes the subject property. Occurrences will include those beyond the subject property and on habitats suitable to those species.

A summary of the search is included in Appendix B. 10 species observed during the Breeding Atlas are listed as a SAR in the *Endangered Species Act*. These species are:

- Common Nighthawk (*Chordeiles minor*) (SC)
- Eastern Whip-poor-will (*Antrostomus vociferus*) (THR)
- Eastern Wood-Pewee (*Contopus virens*) (SC)
- Barn Swallow (THR)
- Bank Swallow (THR)
- Wood Thrush (SC)
- Golden-winged Warbler (*Vermivora chrysoptera*) (SC)
- Grasshopper Sparrow (*Ammodramus savannarum*) (SC)
- Bobolink (THR)
- Eastern Meadowlark (THR)

Other species noted in the search are common to Ontario. An analysis of habitat potential for these significant species is provided in Section 5.

4.2 Field Investigations

4.2.1 Vegetation Communities

Vegetation communities were identified on site using ELC to the vegetation type. Adjacent lands are classified to the Ecosite where possible. Provided below are descriptions of communities, which are shown on *Figure 4 – Ecological Land Classification* and *Table 2 – Site Photos*.

CUP3-3: Scotch Pine Coniferous Plantation Type
This community is largely dominated by Scots Pine (*Pinus sylvestris*) with associates of young to semi-mature American Beech (*Fagus grandifolia*), Large-toothed Aspen (*Populus grandidentata*), White Pine (*Pinus strobus*), Red Pine (*Pinus resinosa*) and Hard Maple (*Acer saccharum*). This habitat is transitioning to a mixed or deciduous forest as Scots Pine on site dies off and is replaced by young deciduous species. Groundcover and shrub layers include American Beech, Green Ash (*Fraxinus pennsylvanica*), Hard Maple, Canada Mayflower (*Maianthemum canadense*) and Marginal Wood Fern (*Dryopteris marginalis*).

CUP3-8: White Spruce-European Larch Coniferous Plantation Type
This community is found in the southern part of the site and is a previous Christmas tree plantation. It consists entirely of planted White Spruce (*Picea glauca*) with a cultural meadow understory that is cut and maintained.

FOD3-1: Dry-Fresh Poplar Deciduous Forest Type
This community is a late successional poplar forest largely dominated by Large-toothed Aspen with associates of Red Oak (*Quercus rubra*), Hard Maple, White Ash (*Fraxinus americana*) and Ironwood (*Ostrya virginiana*). Groundcover and shrub layer includes young Hard Maple, American Beech, White Birch (*Betula papyrifera*), Round-Leaved Dogwood (*Cornus rotundifolia*), Large-Leaved Aster (*Eurybia macrophylla*), Canada Mayflower, White Trillium (*Trillium grandifolium*), Blue Bead Lily (*Clintonia borealis*), Bracken Fern (*Pteridium aquilinum*) and Fall Coralroot (*Corallorhiza odontorhiza*).

FOD2-4: Dry-Fresh Oak – Hardwood Deciduous Forest Type
This community is found along an east-west ridge in the northeast part of the site. It consists of large mature Red Oak, Hard Maple, White Pine, Eastern Hemlock (Tsuga canadensis), American Beech and Large-toothed Aspen. Understory includes Round-Leaved Dogwood, White Birch, American Beech, Hard Maple, Maidenhair Fern (*Adiantum pedatum*), Wild Sarsaparilla (*Aralia nudicaulis*), Christmas Fern (*Polystichum acrostichoides*), Canada Mayflower and Fibrous-rooted Sedge (*Carex communis*).

FOM6-1: Fresh-Moist Sugar Maple – Hemlock Mixed Forest Type
Mature forest along a slope in the north part of the site consists of Eastern Hemlock, Red Oak, Hard Maple, White Birch, Large-toothed Aspen with an understory that includes young Hard Maple, Ironwood, Black Cherry (*Prunus serotina*), Wild Sarsaparilla, Round-Lobed Hepatica (*Anemone americana*), and Partridgeberry (*Mitchella repens*).

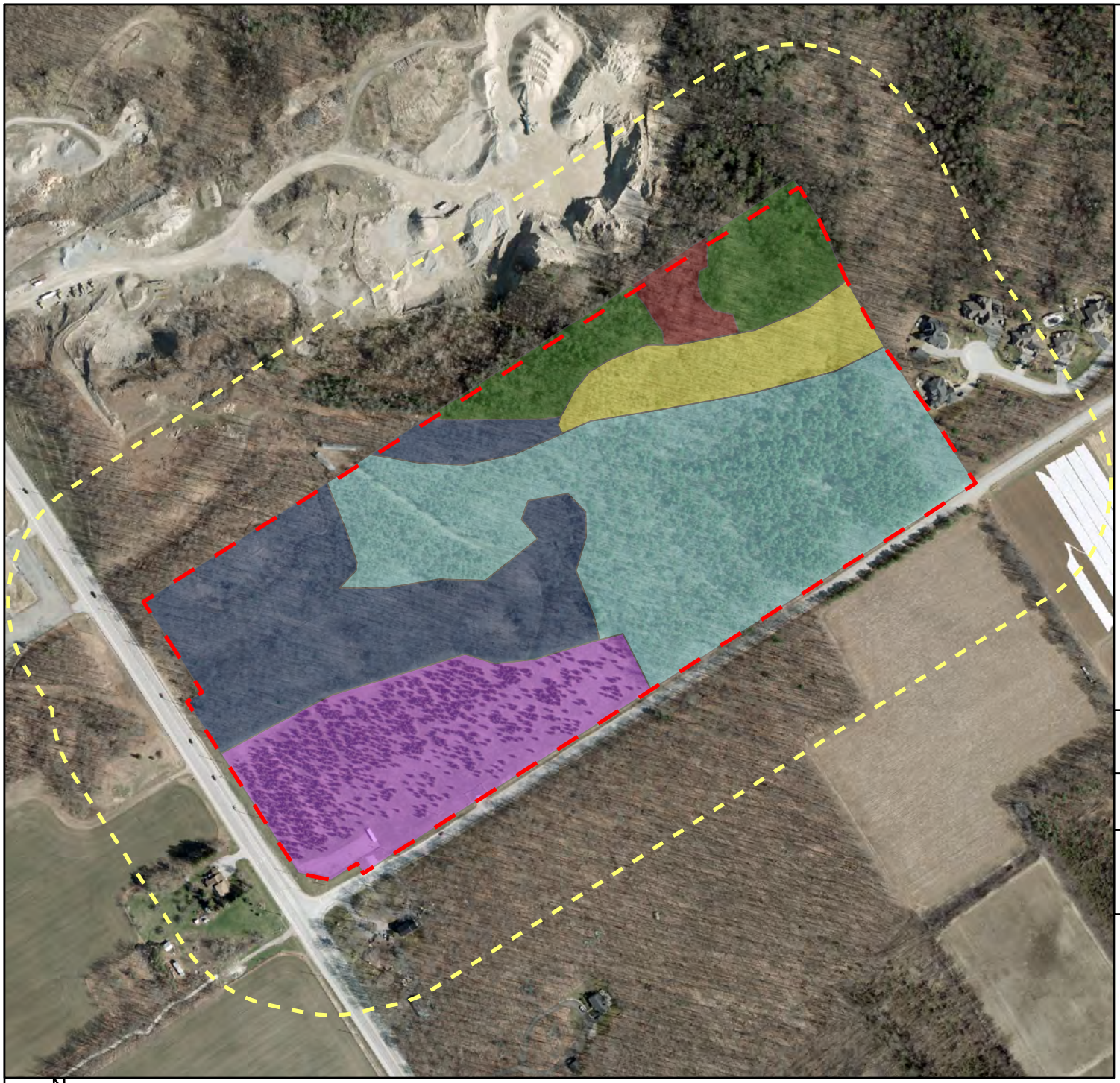

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Figure 4
Ecological Land Classification

Galibier Materials Inc.
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Table 2: Site Photos

	
CUP3-8: White Spruce-European Larch Coniferous Plantation Type	FOD3-1: Dry-Fresh Poplar Deciduous Forest Type
	
FOM6-1: Fresh-Moist Sugar Maple – Hemlock Mixed Forest Type	CUP3-3: Scotch Pine Coniferous Plantation Type
	
FOD5-1: Dry-Fresh Sugar Maple Deciduous Forest Type	FOD2-4: Dry-Fresh Oak – Hardwood Deciduous Forest Type

FOD5-1: Dry-Fresh Sugar Maple Deciduous Forest Type

Semi-mature forest almost entirely dominated by Hard Maple with some associates of Large-toothed Aspen, Trembling Aspen, White Ash and Black Cherry. The understory that includes young Hard Maple, Ironwood, Maple-leaved Viburnum (*Viburnum acerifolium*), Canada Mayflower, White Trillium, Red Trillium, Wild Sarsaparilla (*Aralia nudicaulis*) and Poison Ivy (*Rhus radicans*).

4.2.2 Vascular Flora

There were 123 plant species identified within site. Two species at risk were found on site, being a sensitive species (to be documented separately in an addendum to this NER), and the Butternut tree. Locations of the Butternut trees found on site are shown on *Figure 5- Natural Heritage Features*.

A total of 24 Butternut trees were found on site. These trees were assessed using the current 'Butternut Assessment Guidelines". The assessment in 2020 found: four 'Category 3', one 'Category 2' and 19 'Category 1' trees.

All remaining species observed on the property are found to be common to similar habitats found in Ontario. A list of vascular plants and their status in Ontario is included in Appendix C.

4.2.3 Breeding Birds

42 bird species were documented on site. Two species of Special Concern listed under the ESA were found on site, being the Eastern Wood-Pewee and Wood Thrush. Records for both species were found in the desktop review.

The Eastern Wood-Pewee and Wood Thrush prefer mixed or deciduous woodland habitats. Detections for the Wood Thrush occurred in the northeast corner of the site within FOM6-1, and the Eastern Wood-Pewee was found FOM6-1, FOD5-2 and FOD5-1 communities as shown on *Figure 5- Natural Heritage Features*. Based on the presence of these Special Concern species, the ELC communities containing detections are included as habitat.

All remaining species found on the property are common within this area and Ontario. A list of species observed is included in Appendix C.

4.2.4 Species At Risk

4.2.4.1 WHIP-POOR-WILL

Surveys in 2013 and 2020 found no detections of Whip-poor-will within the site or adjacent lands. No habitat for this species is present.

4.2.4.2 BATS (MYOTIS SP.)

Snag/cavity tree surveys were completed in the early spring of 2020 for all treed habitats on the site. Three vegetation communities were found to have higher quality potential for bat roost habitat, being FOD3-1, FOD2-4 and FOM6-1 in the northeast part of the site along a mature wooded slope. A snag/cavity density of 20 trees/ha was found for FOD3-1 and 32 trees/ha for FOD2-4/FOM6-1.

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Figure 5
Natural Heritage Features

Galibier Materials Inc.
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MECP was consulted to determine the requirements for acoustic monitoring to confirm the presence/absence of SAR bat species in this potential habitat. MECP stated in an email of May 28, 2020: "*Given that that surrounding landscape offers contiguous forest that is of the same or greater quality and potential for bats it is unlikely that a permit would be require to remove the forested habitat on site. Although the extent of tree removal has not been determined at this time, one approach moving forward would be to assume presence and implement mitigation measures to avoid and/or minimize impacts. If the presence of species at risk bats were assumed and mitigated MECP would not require acoustic monitoring to be completed.*"

Based on the MECP recommendation, it is assumed that SAR bat species may be present on site. Mitigation measures will be implemented (Section 6 of this report) to avoid and/or minimize any impacts.

4.2.5 Incidental Wildlife

Incidental wildlife observations made during site visits (not documented in specific surveys) included the Coyote (*Canis latrans*), Raccoon (*Procyon lotor*), Eastern Garter Snake (*Thamnophis sirtalis*) and White-tailed Deer (*Odocoileus virginianus*). These observations are included in Appendix C.

5 ANALYSIS OF NATURAL HERITAGE FEATURES

Identification of natural heritage features is based on the PPS, ARA provincial standards, the MNRF "Natural Heritage Reference Manual" (2nd Edition) (MNRF 2010), Township of Springwater Official Plan, "Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E" (MNRF January 2015), and listings and habitat descriptions for species listed in the ESA.

5.1 Significant Wetlands (and Coastal Wetlands)

A review of the MNRF NHIC mapping and County of Simcoe Interactive Mapping found no Provincially Significant Wetland on or within 120 metres of the site.

5.2 Other Wetlands (Unevaluated, Non-Provincially Significant)

A review of the MNRF NHIC mapping, County of Simcoe Interactive Mapping and field surveys from 2013-2021 found no unevaluated, un-mapped or non-provincially significant wetland on or within 120 metres of the site.

5.3 Significant Woodlands

The woodlands within the subject property have been identified as Natural Heritage (Environmental Protection) Category 2 Lands. This identification is likely based on the presence of Significant Forest on the site. The Township Official Plan does not provide a size requirement for significance. The Official Plan states (Section 16.2.1.4.2 (c)(i)(d)) that:

> "*Significant forests may be determined by the Township according to the combination of various factors such as species composition, age and maturity, contiguous size, terrain characteristics, Natural Heritage System linkages and connections, aesthetic and historical values, and productive capacity.*"

The Natural Heritage Reference Manual (NHRM) (OMNR March 2010) provides criteria for the identification of Significant Woodlands in municipalities. Table 7-2 of the NHRM outlines those criteria.

The Township Official Plan Section 16.2.1.4.2 (c)(i)(a) identifies that a Township woodland cover of approximately 30%. For a municipality with 30-60% woodland cover, woodlands 50 ha in size or larger should be considered significant. Woodlands found on the subject site are contiguous with woodland cover to the northeast, east and south that have a size greater than 50 ha.

Woodlands on site do not meet other criteria for significance in Table 7-2 of the NHRM as shown in Table 3 below.

Table 3: Significant Woodlands Criteria

Woodland Criteria	Site Evaluation	Significant or Not Significant
Woodland Size	The Township of Springwater Official Plan states that woodland cover is approximately 30% of the land cover. Where woodland cover is 30-60% of the land cover, woodlands 50ha in size or larger should be considered significant. Woodland cover on the subject property is contiguous with woodlands to the northeast, east and south found to be greater than 50ha in total size.	**Significant**
Ecological Functions		
2.a. Woodland Interior	Interior habitat of 8 ha or larger not present using 100 m from edges of major roads and the existing Lewis Pit.	Not Significant
2.b. Proximity to other Woodlands or other habitats	No significant features (i.e. Provincially Significant Wetlands, Watercourses) are identified within 30 m.	Not Significant
2.c. Linkages	The subject property is part of the Township Natural Heritage System, however, no linkages are identified in Schedules of the Official Plan. Linkages to adjacent woodlands to the east and northeast are present and potentially across Seadon Road where a gap between woodlands is less than 20 metres in width.	**Significant**
2.d. Water Protection	No sensitive or threatened watershed, valley banks, groundwater discharge or recharge areas, headwater areas or watercourse are in close proximity (i.e. 50m).	Not Significant
2.e. Woodland Diversity	Woodland vegetation types found in the subject property are common to Ontario (S5) and not considered in decline. Woodland composition and terrain is common to the Township.	Not Significant
Uncommon Characteristics	Composition of the woodland and vegetation types are considered secure (S5) in Ontario. The woodlands are a mix of previous cultural plantation and immature to semi mature woodlands less than 100 years in age based on diameters of trees on site.	Not Significant
Economic and Social Functional Values	The site is not utilized as a commercial woodlot. The Christmas tree nursery in the south part of the property would not be considered highly productive in terms of economic products.	Not Significant

As Significant Forests on site meet criteria for Woodland Size and potentially Linkages, an impact assessment is provided in Section 6.

5.4 Significant Valleylands

No significant valley land features were identified during the desktop review or found during field surveys on the site.

5.5 Significant Wildlife Habitat

As analysis of candidate Significant Wildlife Habitat has been completed using the "*Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E*" (MNRF 2015) based on the results of the desktop review and field surveys. This assessment is included as Appendix D.

Table 4 summarizes the three types of potential candidate Significant Wildlife Habitat (SWH) features identified in the study area.

Table 4: Candidate Significant Wildlife Habitat

Habitat Type	Rationale	Location in Study Area
Special Concern and Rare Wildlife Species	Presence of Special Concern Eastern Wood-Pewee and Wood Thrush.	ELC Units FOD3-1 & FOM6-1.
Bat Maternity Colonies	Presence of suitable woodland maternity roost habitat in the north part of the site.	ELC Units FOD3-1, FOM6-1& FOD2-4.

Based on the presence of SWH features identified on site, an impact assessment will be completed in Section 6.

5.6 Significant Areas of Natural and Scientific Interest

A desktop review of available information found no Provincially Significant ANSI's in the study area.

5.7 Fish Habitat

No fish habitat was identified during the desktop review or found during field surveys on the site or study area.

5.8 Habitat of Endangered Species and Threatened Species

Two species at risk were confirmed on site during field investigations, the endangered Butternut tree and a sensitive species. As stated above, the sensitive species will be addressed in a separate addendum to the NER. In addition, potential maternity roosting habitat for endangered bat species (*Myotis* sp.) was also identified on site.

The Eastern Wood-Pewee and Wood Thrush are listed under the ESA as Special Concern. Special Concern species have no direct protection under Sections 9 and 10 of the ESA.

Based on the presence of these listed threatened or endangered species, an impact assessment will be completed in Section 6.

5.9 Natural Heritage Systems

The site is within the Provincial Growth Plan (2020) area. The subject site is not included in the Natural Heritage System (NHS) for the Growth Plan as it is within the Snow Valley settlement area. Policies regarding the NHS do not apply within a Settlement Area.

The site is found within Natural Heritage (Environmental Protection) Category 2 Lands within the NHS of the Township of Springwater Official Plan.

6 IMPACT ASSESSMENT AND MITIGATION

Three (3) natural heritage features were identified within the site and adjacent lands, being:

- Significant Woodlands;
- Candidate Significant Wildlife Habitat; and
- Habitat of Endangered Species and Threatened Species.

This section will assess potential impacts to these features and ecological functions as a result of the proposed aggregate pit and provides mitigation measures to ensure no negative impacts. This report utilizes the definition of a "negative impact" in the PPS (Page 47) "*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.*"

A summary of compliance with the PPS, Growth Plan and Township Official Plan as it relates to policies regarding the naturel environment is provided in Appendix E.

6.1 Significant Woodlands

The identification of Significant Woodlands on site and adjacent lands is based on Woodland Size and the presence of potential linkages to woodlands to the northeast/east and south. The test of a negative impact in this case is to determine if removal of woodland would result in a reduction in the overall size of that woodland feature to the extent that it would no longer meet the criteria of 50 ha or larger and maintain existing linkages to other woodlands or natural features.

As shown on *Figure 6- Significant Woodlands/Forests*, woodlands on site are part of a larger woodland feature that exceeds over 300 hectares in size to the north and east of the site, and 56 ha to the south. The total woodlands area to be removed as a result of extraction is 14.79 ha. The size of the remaining woodland feature contiguous to the subject site would still meet the criteria for significance of greater than 50 ha in the NHRM, thereby meeting the test for no negative impact.

Legend

- Expansion Lands
- Extraction Area
- Adjacent Lands (120 m)
- Woodlands (MNRF)

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Figure 6
Woodlands

Galibier Materials Inc.
2857 Seadon Road
Township of Springwater

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N

0.5 0.25 0 0.5 1 1.5 2

Kilometers

In addition, rehabilitation planned for the site will include 12.2 ha of reforestation (see Site Plan- Page 3- Rehabilitation Plan), thereby reduced woodland loss from extraction to 2.64 ha post-rehabilitation of the site. It is recommended that reforestation include native species endemic to the area, which shall include Hard Maple, Red Oak, Balsam Fir (*Abies balsamifera*), Black Cherry and White Birch, and shelter species such as Trembling Aspen and Large-toothed Aspen. Spacing in reforestation areas shall be 5 metres-on-centre to prevent overcrowding and to allow eventual canopy closure. Groundcover shall be seeded with a native woodland seed mix and annual rye grass nurse crop.

Topsoil removed during extraction will be stored on site and utilized during rehabilitation. This topsoil will contain seed stock that re-populate species previously found on site.

Reforestation of the site will also include the continuation of a linkage to woodlands south of the site (across Seadon Road). This linkage will be 50 metres in width and provide a corridor for general species. Remaining linkages on adjacent lands to between those woodlands and further northeast will be maintained.

Development of the site will not result loss of significance for the Significant Woodlands (Forest) in relation to overall size. Linkages to adjacent woodlands will be maintained and rehabilitation will restore approximately 12.2 ha of woodland habitats. No negative impacts per the PPS are anticipated.

6.2 Significant Wildlife Habitat

Two types of candidate SWH were identified on the site and adjacent lands, being Special Concern and Rare Wildlife Species and Bat Maternity Colonies.

6.2.1 Special Concern and Rare Wildlife Species

Two species of Special Concern were identified on site and adjacent lands, being the Eastern Wood-Pewee and Wood Thrush.

Potential habitat on site for both of these species in mixed or deciduous vegetation types totals 9.13 ha, with 8.09 ha to be removed as a result of extraction. Over 356 ha of similar and larger patches of contiguous habitat is found on lands to the northeast/east and south of the site.

It is expected that Eastern Wood-Pewee and Wood Thrush temporarily displaced by removal of habitat on site will continue to utilize adjacent abundant habitats in the area.

As stated above (Section 6.2), a portion of the site will be reforested during rehabilitation. 12.2 ha of available habitat will be restored post-rehabilitation with treed composition that is preferred by these species.

To avoid potential direct impacts (i.e. destruction of nests), it is recommended that no clearing of vegetation occur between April 5 – August 27th per Environment Canada's general nesting periods of migratory birds (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html#_zoneC_calendar). This window will also provide protection for other migratory bird species on site.

Based on the large quantity of habitat in the vicinity of the site that will continue to provide habitat for these species, rehabilitation of portions of the site and timing restrictions for removal of vegetation, we anticipate no negative impacts to Significant Wildlife Habitat.

6.2.2 Bat Maternity Colonies

Potential bat maternity roost habitat was identified during specific surveys for SAR bats in the north part of the site.

As described above, this type of habitat is not limited in the study area. Adjacent lands and habitat around the site will continue to provide habitat for bat species in the area.

This rational is confirmed in email correspondence by MECP (Appendix A) on SAR bat species, in which, MECP states that the surrounding landscape offers large tracts of continuous habitat that is of the same of greater quality then is present on site.

It is recommended that to avoid direct impacts to roosting bats, no clearing of vegetation occur between April 1 and October 31st during the active season.

As stated above (Section 6.2), a portion of the site will be reforested during rehabilitation. 12.2 ha of available habitat will be restored post-rehabilitation with treed composition that is preferred by these species.

Based on the large quantity of habitat in the vicinity of the site that will continue to provide habitat for these species, rehabilitation of a large portion of the site and timing restrictions for removal of woodlands, we anticipate no negative impacts to this potential Significant Wildlife Habitat.

6.3 Habitat for Endangered Species and Threatened Species

Two species at risk were confirmed on site during field investigations, the endangered Butternut tree and a sensitive species. As stated above, the sensitive species will be addressed in a separate addendum to the NER. In addition, potential maternity roosting habitat for endangered bat species (Myotis sp.) was also identified on site.

General habitat protection for endangered or threatened species is provided under Sections 9 and 10 of the ESA.

6.3.1 Butternut

A total of 24 butternut trees were found on the subject site. Of these trees, five are afforded protection under the ESA as Category 2 or 3 trees. Remaining Category 1 trees (non-retainable) have no protection as they are diseased and affected by the Butternut Canker to the point where they provide no continued benefit to the species or recovery.

Currently, the Butternut has general habitat protection under the ESA. This general habitat protection includes area on which a species depends directly or indirectly to carry out its life processes. The Recovery Strategy for the Butternut (OMNR May 31, 2013), identifies a 25-m radius around the base of the stem as future regulated habitat.

As the health of a Butternut tree can change over time due to infection by the Butternut Canker or other processes (i.e. windthrow or canopy crowding), it is recommended that prior to any extraction on site within 25 metres of a Butternut identified as Category 2 or 3, a re-assessment of those trees be undertaken by a qualified person. In addition, a survey shall be completed during the appropriate season (June 1 – August 31) prior to removal of vegetation in each phase of the pit to ensure no new Butternut are present that have not been previously mapped on site.

Prior to removal of any Butternut, a Butternut Assessment shall be completed and submitted to MECP per current protocols.

If any Category 2 or 3 trees are to be removed, registration under Ontario Regulation 242/08 or permits under the ESA shall be completed prior to removal of those trees. If changes to O. Reg. 242/08 or the ESA come into effect during pit extraction, recommendations made in this report shall be updated to comply with requirements of that legislation.

Provided recommendations of this report are implemented, the proposed development complies with the current policies and requirements of the ESA and no impacts are anticipated.

6.3.2 Bats (Myotis Sp.)

Potential maternity treed roosting habitat for SAR bat species was identified based on cavity/snag count surveys in the north part of the site. Per MECP consultation, no acoustic monitoring was required if the assumption was made that habitat is present.

MECP stated that based on their assessment and information provided, abundant habitat was present in the landscape, and removal of that potential habitat would not require a permit under the ESA. MECP further stated that mitigation measures should be implemented to avoid or minimize impacts to this habitat and species that may be present.

It is recommended that to avoid direct impacts to roosting bats, no clearing of vegetation occur between April 1 and October 31st during the active season.

Rehabilitation of forested areas on site will be completed using tree species preferred as roost sites for SAR bats, including Hard Maple, Red Oak and White Birch. This reforestation will offset temporary loss of this habitat when forest communities mature and once again provide habitat for these species.

Provided recommendations of this report are implemented, the proposed development complies with the current policies and requirements of the ESA per consultation with MECP and no impacts are anticipated.

6.4 Technical Recommendations

The following provides a summary of technical recommendations for mitigation measures made in this NER to ensure no negative impacts to identified natural heritage features and their ecological functions, and for compliance with applicable municipal and provincial plans and legislation. These technical recommendations will be implemented as part of the Site Plan for the expansion.

1. Reforestation areas as part of site rehabilitation shall be completed with native species, including: Hard Maple, Red Oak, Balsam Fir, Black Cherry and White Birch, and shelter species such as Trembling Aspen and Large-toothed Aspen. Spacing in reforestation areas shall be 5 meters-on-

center. Groundcover shall be seeded with a native woodland seed mix and annual rye grass nurse crop.

2. No clearing of vegetation between April 5 – August 27th to coincide with Environment Canada's general nesting periods for migratory birds.
3. No clearing of vegetation between April 1 and October 31st during the active season for bat species.
4. Prior to extraction of each phase, a survey for the Butternut tree (*Juglans cinerea*) shall be completed between June 1 – August 31st. If butternut is present in that phase, an assessment shall be completed by a qualified person and submitted to the Ministry of Environment, Conservation and Parks (MECP). If the assessment identifies the presence a Category 2 or 3 Butternut tree, the activity shall be registered with MECP or a permit obtained under the *Endangered Species Act* (ESA) prior to any removal of a Butternut Tree(s) or suitable habitat within 50 metres.
5. Prior to extraction of each phase, a screening for species listed as threatened or endangered in the *Endangered Species Act* (ESA) shall be completed by a qualified person. If a species is found, any removal of habitat for that species shall be done in compliance with requirements of the ESA.

7 CONCLUSIONS

Roots Environmental has been retained to complete a Natural Environment Report for a property located at 2857 Seadon Road in the Township of Springwater to support planning and Aggregate Resources Act applications to permit expansion of the existing licensed Lewis Pit (ARA License # 3560) for a Pit Above Water.

Three natural heritage features were identified on site and adjacent lands, being:

- Significant Woodlands;
- Candidate Significant Wildlife Habitat; and
- Habitat for Endangered Species and Threatened Species.

Provided mitigations measures in this report are implemented, we anticipate no negative impacts to identified natural heritage features as a result of the proposed expansion of an aggregate pit.

Respectively submitted by Roots Environmental:

Kyle Fleming, BSc. (Wildlife)
Senior Ecologist, Owner

REFERENCES

Government of Ontario. 2020. Provincial Policy Statement. Queen's Printer of Ontario.

Government of Ontario. August 2020. Aggregate resources of Ontario standards: A compilation of the four standards adopted by Ontario Regulation 244/97 under the Aggregate Resources Act.

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

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Ontario Ministry of Natural Resources and Forestry. March 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005.

The Corporation of the Township of Springwater. December 2018. Official Plan.

APPENDIX A

Agency Correspondence

65 MELROSE AVE,
BARRIE, ON L4M 2B1
705.718.6153
WWW.ROOTSENVIRONMENTAL.CA

TECHNICAL MEMORANDOM

To: NVCA

Date: March 27, 2020

From: Kyle Fleming, Senior Ecologist

Subject: Work Plan for Field Investigations
Natural Environment Report
Lewis Pit Expansion

The following is provided as a work plan for field investigations as part of a Natural Environment Report Level I & II/EIS for the proposed expansion of the existing licensed Lewis Pit. From 2013-2016, field investigations were completed in the expansion area per a work plan previously submitted and approved by the Nottawasaga Valley Conservation Authority (NVCA) and Ministry of Natural Resources and Forestry (MNRF) in 2013. Fieldwork in 2020 will update that past work and consider changes to protocols, legislation and policies since 2013.

This updated Work Plan is based on a desktop review of available information (NHIC, previous MNRF correspondence, Breeding Bird Atlas, Official Plan Schedules, etc.), air photos, field investigations from 2013-2019, and habitat present within the proposed licensed area (FOD, FOM, & CUP).

A Figure illustrating the study area is attached.

The field studies are divided into sections to illustrate those completed to satisfy requirements for biophysical surveys as part of a NER/EIS and specific surveys for species at risk.

We ask that you provide acceptable or any comments to be incorporated into the work plan for 2020 investigations.

Purpose	Timing (Season and Approx. Dates, # of visits)	Methods
Floral/Faunal Surveys (incl. surveys to identify SWH)		
Vascular Plants	**Spring: May 2020** **Summer: July to mid-August 2020** **Early fall: Late August to mid September 2020** Previous survey dates: May 14, 2013 July 26, 2013 September 13, 2013 **incidental observations will also be made during site visits for other purposes (i.e. breeding birds)	i. Roving active search through all habitats/ELC Ecosites. ii. Document all species, while photographing and recording GPS coordinates for all species which are rare or species at risk.
Breeding Birds	**2 Visits in Breeding Season Late May-Early July 2020** **1 visit in March/Early April for Woodland Raptor Nesting** Previous survey dates: June 4 & 25, 2013	i. Roving active search by auditory and visual observations. ii. Conducting no earlier than ½ after sunrise to 1000hrs. iii. Document all species and behavior, while recording habitat type and GPS coordinates for species which are rare or species at risk.
Incidental Observations (mammals, reptiles, amphibians)	**Spring/summer 2020**	i. To be conducted during active searches for other purposes.
Ecological Land Classification	**Summer 2020**	i. To be conducted during active searches for other purposes.

Species at Risk Surveys		
Whip-poor-will	**3 Surveys from May 1-July 31 2020** Previous surveys: May 27, 2013 June 17, 2013 July 22, 2013	i. Being each survey at least 30 minutes after sunset and end no later than 15 minutes before sunrise. ii. Surveys must be conducted when the moon is above the horizon and not obscured by clouds. iii. The weather conditions must be calm to light winds, no precipitation and temperatures above 10°C. **ADAPTED FROM WHIP-POOR-WILL SURVEY INSTRUCTIONS (KEMPTVILLE MNR- 2015).
Butternut	**Late Spring/Summer 2020** **previous surveys in 2013-2014 identified 17 butternut trees which were assessed, and report submitted to MNRF. These trees will be reassessed in 2020.	i. Dedicated survey within all areas of property. ii. Will be conducted during vascular plant and other surveys on the property. iii. Any trees found will have GPS coordinates taken for assessments per MECP protocols.
[redacted]		
Bats (Little Brown Myotis, Northern Myotis, and Tri-Colored Bat)	**April and June 2020**	i. Snag/cavity roost tree survey through all areas of suitable habitat to determine presence and concentrations of potential roost trees. ii. Acoustic surveys to determine presence/absence of SAR bats in woodland habitat.

Kyle Fleming

From: Lee Bull <lbull@nvca.on.ca>
Sent: April 14, 2020 11:37 AM
To: Kyle Fleming
Cc: Morgen Wilson
Subject: Galibier Pit - Township of Springwater - NH scoping - UNC ID # 40070

Good morning Kyle

Nottawasaga Valley Conservation Authority [NVCA] staff has reviewed the following:

- Roots Environmental, Lewis Pit Expansion (Springwater), 'Technical Memorandum' re: Work Plan for Field Investigations, dated March 27 2020

The proposed work plan should be reasonably sufficient to document all relevant NH characteristics of the study area, including identifying habitat for SAR and other potential species of conservation concern.

Please feel free to contact the undersigned should you wish to discuss this further.

Sincerely,

Lee J. Bull, MCIP, RPP | Manager, Planning Services

Nottawasaga Valley Conservation Authority
8195 8th Line, Utopia, ON L0M 1T0
T 705-424-1479 ext. 231 | **F** 705-424-2115
lbull@nvca.on.ca | **nvca.on.ca**

I am currently working remotely as the Nottawasaga Valley Conservation Authority is taking preventative measures to limit the spread of COVID-19. You may experience some delays or disruptions as we follow recommendations of health professionals to slow the virus from spreading.

ROOTS ENVIRONMENTAL

65 MELROSE AVE,
BARRIE, ON L4M 2B1
705.718.6153

WWW.ROOTSENVIRONMENTAL.CA

TECHNICAL MEMORANDOM

To: MECP

Date: March 27, 2020

From: Kyle Fleming, Senior Ecologist

Subject: Work Plan for Field Investigations
Natural Environment Report
Lewis Pit Expansion

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This updated Work Plan is based on a desktop review of available information (NHIC, previous MNRF correspondence, Breeding Bird Atlas, Official Plan Schedules, etc.), air photos, field investigations from 2013-2019, and habitat present within the proposed licensed area (FOD, FOM, & CUP).

A Figure illustrating the study area is attached.

The field studies are divided into sections to illustrate those completed to satisfy requirements for biophysical surveys as part of a NER/EIS and specific surveys for species at risk.

We ask that you provide acceptable or any comments to be incorporated into the work plan for 2020 investigations.

Purpose	Timing (Season and Approx. Dates, # of visits)	Methods
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Vascular Plants	**Spring: May 2020** **Summer: July to mid-August 2020** **Early fall: Late August to mid September 2020** Previous survey dates: May 14, 2013 July 26, 2013 September 13, 2013 **incidental observations will also be made during site visits for other purposes (i.e. breeding birds)	i. Roving active search through all habitats/ELC Ecosites. ii. Document all species, while photographing and recording GPS coordinates for all species which are rare or species at risk.
Breeding Birds	**2 Visits in Breeding Season Late May-Early July 2020** **1 visit in March/Early April for Woodland Raptor Nesting** Previous survey dates: June 4 & 25, 2013	i. Roving active search by auditory and visual observations. ii. Conducting no earlier than ½ after sunrise to 1000hrs. iii. Document all species and behavior, while recording habitat type and GPS coordinates for species which are rare or species at risk.
Incidental Observations (mammals, reptiles, amphibians)	**Spring/summer 2020**	i. To be conducted during active searches for other purposes.
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Whip-poor-will	**3 Surveys from May 1-July 31 2020** Previous surveys: May 27, 2013 June 17, 2013 July 22, 2013	i. Being each survey at least 30 minutes after sunset and end no later than 15 minutes before sunrise. ii. Surveys must be conducted when the moon is above the horizon and not obscured by clouds. iii. The weather conditions must be calm to light winds, no precipitation and temperatures above 10°C. **ADAPTED FROM WHIP-POOR-WILL SURVEY INSTRUCTIONS (KEMPTVILLE MNR- 2015).
Butternut	**Late Spring/Summer 2020** **previous surveys in 2013-2014 identified 17 butternut trees which were assessed, and report submitted to MNRF. These trees will be reassessed in 2020.	i. Dedicated survey within all areas of property. ii. Will be conducted during vascular plant and other surveys on the property. iii. Any trees found will have GPS coordinates taken for assessments per MECP protocols.
[redacted]		
Bats (Little Brown Myotis, Northern Myotis, and Tri-Colored Bat)	**April and June 2020**	i. Snag/cavity roost tree survey through all areas of suitable habitat to determine presence and concentrations of potential roost trees. ii. Acoustic surveys to determine presence/absence of SAR bats in woodland habitat.

Kyle Fleming

From: Eplett, Megan (MECP) <Megan.Eplett@ontario.ca>
Sent: April 23, 2020 2:02 PM
To: Kyle Fleming
Subject: RE: Consultation for Natural Environment Investigations - Township of Springwater, County of Simcoe

Follow Up Flag: Follow up
Flag Status: Completed

Hello Kyle,

Thank you for submitting the work plan for the 2020 field season to inform updates to the Natural Environment Report for the Lewis Pit Expansion. Overall MECP agrees with the proposed work plan. Please find below minor comments regarding Whip-poor-will and Species at Risk bats.

Whip-poor-will
To be most effective surveys need to be conducted during the appropriate phase of the lunar cycle, specifically when 50% or more of the visible moon face is illuminated and clearly visible.

Species at Risk Bats
MECP advises completing the snag surveys to assess habitat quality and quantity for bats on site as a first step. Once completed please consult with MECP regarding the need for acoustic monitoring on site.

If you have any further questions please feel free to contact me.

Thank you,

Megan

Megan Eplett | Management Biologist | Permissions and Compliance | Species at Risk Branch | Ontario Ministry of Environment, Conservation and Parks
50 Bloomington Road, Aurora, Ontario, L4G 0L8 | Phone: 289-221-1794 |
Email: megan.eplett@ontario.ca

From: Kyle Fleming <kyle@rootsenvironmental.ca>
Sent: March 27, 2020 2:35 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Subject: Consultation for Natural Environment Investigations - Township of Springwater, County of Simcoe

Hello,

As part of a future application for an expansion under the Aggregate Resources Act (ARA) (with related municipal applications) to the licensed Lewis Pit located at 2791 & 2857 George Johnston Road in the Township of Springwater, a

Natural Environment Report (NER)/Environmental Impact Study will be completed. A figure illustrating the boundaries of the existing licensed pit and expansion lands is attached.

Investigations were previously completed from 2013-2016 under a similar work plan for the NER approved by MNRF and the Nottawasaga Valley Conservation Authority (NVCA). To update surveys previously completed, as they are now relatively out of date, a new work plan has been developed for field investigations to occur in 2020, which is attached. This work plan has also been submitted to NVCA for any comments.

As a result of previous investigations on the property, several Species at Risk (SAR) were identified, being:

- [redacted]
- Butternut;
- Eastern Wood-Pewee; and
- Wood Thrush.

[redacted]

A total of 17 butternut trees were found in the expansion lands in 2013-2014. An assessment was completed for these trees and provided to MNRF. It is expected that a re-assessment of the trees will occur in 2020 to ensure results of the original assessment are still valid.

We would appreciate any information you have on the subject property or general area that should be considered in our fieldwork this year, and request your approval and/or comments on this work plan. No formal pre-consultation has occurred with agencies yet, but with the field season starting, we need to get started on site works soon. We would also appreciate confirmation of any survey protocols for bats and whip-poor-will (or other species indicated in the work plan) that MECP requires for this area.

If you have any questions, or require any further information, please contact me.

All the best,

Kyle

Kyle Fleming, BSc. (Wildlife)
Senior Ecologist/Owner

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65 Melrose Ave
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kyle@rootsenvironmental.ca
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Kyle Fleming

From: Eplett, Megan (MECP) <Megan.Eplett@ontario.ca>
Sent: May 28, 2020 1:58 PM
To: Kyle Fleming
Subject: RE: Consultation for Natural Environment Investigations - Township of Springwater, County of Simcoe

Hi Kyle,

I've reviewed the snag survey data your have provided for this project. From the information provided it appears that the FOD3 and FOM3 communities are potential habitat for species at risk bats based on the results of your surveys. It is likely that species at risk bats would be using these areas.

Given that that surrounding landscape offers contiguous forest that is of the same or greater quality and potential for bats it is unlikely that a permit would be require to remove the forested habitat on site. Although the extent of tree removal has not been determined at this time, one approach moving forward would be to assume presence and implement mitigation measures to avoid and/or minimize impacts. If the presence of species at risk bats were assumed and mitigated MECP would not require acoustic monitoring to be completed.

I understand that the survey work is being completed to support an application under the *Aggregate Resources Act* (ARA) MECP encourages evaluating alternatives that avoid or reduce the need for tree removals within the FOD3 and FOM3 communities where feasible.

If you have any questions about the above please feel free to contact me.

Thanks,

Megan

Megan Eplett | Management Biologist | Permissions and Compliance | Species at Risk Branch | Ontario Ministry of Environment, Conservation and Parks
50 Bloomington Road, Aurora, Ontario, L4G 0L8 | Phone: 289-221-1794 |
Email: megan.eplett@ontario.ca

From: Kyle Fleming <kyle@rootsenvironmental.ca>
Sent: Tuesday, April 28, 2020 1:47 PM
To: Eplett, Megan (MECP) <Megan.Eplett@ontario.ca>
Subject: RE: Consultation for Natural Environment Investigations - Township of Springwater, County of Simcoe

Hi Megan,

Thanks again for sending your comments back. As I indicated in my last email, we have completed the bat snag/cavity tree survey earlier this month. I have completed the analysis of this survey. Below is a summary of that work and our proposed work plan for acoustic monitoring.

Summary of Bat Snag/Cavity Tree Survey

- A bat snag/cavity tree survey for all treed areas within the expansion lands was completed on April 6-7, 2020 during leaf-off period.
- Survey stations were randomly placed to cover all types of treed habitats (to Ecosite level). Figure 1 – Snag Stations (no ELC) and Figure 2 – Snag Stations (ELC) are attached to show locations of the stations.
- Attached is an excel sheet with the results of the survey. Two communities were found to have higher quality potential for bat roost habitat, being FOD3 and FOM3. FOD3 is a semi-mature-to-mature poplar stand and FOM3 is a mature-very mature mixed hemlock-oak-maple stand.
- FOM3 may be the highest quality habitat on site. It is on a ridgeline (down to the existing pit) that does not appear to have been logged intensively in the past, as indicated by the presence of large mature red oak, eastern hemlock and hard maple.
- The majority of the tableland area in the expansion area has been previously logged (previous owner had a log mill). There is also a large stand of planted Scots Pine (CUP3-3), which is not suitable.

Acoustic Monitoring Plan

- We have isolated the two Ecosites with the higher quality habitat (FOD3 and FOM3) for acoustic surveys.
- As shown on Figure 3 – Acoustic Monitoring Stations, we have spaced acoustic stations approximately 60 m on centre to allow for coverage of that entire area. This is based on monitors having a range of 30-40 m.
- We will set monitors in those locations for a recording period of 10 nights between June 1 – 30th.
- We will manually verify any detections and summarize for MECP review.

Please let me know if our plan is acceptable to MECP. We would appreciate if you could get back to us fairly soon, as due to the present covid-19 situation it will take longer to get monitors delivered.

Please let me know if you have any questions.

All the best,

Kyle

Kyle Fleming, BSc. (Wildlife)
Senior Ecologist/Owner
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65 Melrose Ave
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From: Eplett, Megan (MECP) <Megan.Eplett@ontario.ca>
Sent: April 23, 2020 2:02 PM
To: Kyle Fleming <kyle@rootsenvironmental.ca>
Subject: RE: Consultation for Natural Environment Investigations - Township of Springwater, County of Simcoe

Hello Kyle,

Thank you for submitting the work plan for the 2020 field season to inform updates to the Natural Environment Report for the Lewis Pit Expansion. Overall MECP agrees with the proposed work plan. Please find below minor comments regarding Whip-poor-will and Species at Risk bats.

Whip-poor-will
To be most effective surveys need to be conducted during the appropriate phase of the lunar cycle, specifically when 50% or more of the visible moon face is illuminated and clearly visible.

Species at Risk Bats
MECP advises completing the snag surveys to assess habitat quality and quantity for bats on site as a first step. Once completed please consult with MECP regarding the need for acoustic monitoring on site.

If you have any further questions please feel free to contact me.

Thank you,

Megan

Megan Eplett | Management Biologist | Permissions and Compliance | Species at Risk Branch | Ontario Ministry of Environment, Conservation and Parks
50 Bloomington Road, Aurora, Ontario, L4G 0L8 | Phone: 289-221-1794 |
Email: megan.eplett@ontario.ca

From: Kyle Fleming <kyle@rootsenvironmental.ca>
Sent: March 27, 2020 2:35 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Subject: Consultation for Natural Environment Investigations - Township of Springwater, County of Simcoe

Hello,

As part of a future application for an expansion under the Aggregate Resources Act (ARA) (with related municipal applications) to the licensed Lewis Pit located at 2791 & 2857 George Johnston Road in the Township of Springwater, a Natural Environment Report (NER)/Environmental Impact Study will be completed. A figure illustrating the boundaries of the existing licensed pit and expansion lands is attached.

Investigations were previously completed from 2013-2016 under a similar work plan for the NER approved by MNRF and the Nottawasaga Valley Conservation Authority (NVCA). To update surveys previously completed, as they are now relatively out of date, a new work plan has been developed for field investigations to occur in 2020, which is attached. This work plan has also been submitted to NVCA for any comments.

As a result of previous investigations on the property, several Species at Risk (SAR) were identified, being:

- American Ginseng,
- Butternut;
- Eastern Wood-Pewee; and

- Wood Thrush.

For your information, under O. Reg. 242/08 (Section 23.14) and in consultation with MNRF at the time, a registration for American Ginseng was completed to transplant plants that could be indirectly impacted by pit operations. The plants were located on along the edge of the adjacent lands (proposed for expansion) and the existing licensed pit. A mitigation plan was completed and surveys, transplants and monitoring has occurred since 2016. Transplants occurred from the Lewis Pit and expansion lands to a Nature Conservancy of Canada (NCC) property (in agreement with NCC). In addition, a B-Permit (AU-B-019-18) under the ESA was obtained from the MNRF in 2018 to collect seeds from American Ginseng to compensate for any loss of any plants during transplant and under an agreement with NCC to provide net benefit to ginseng populations on their lands. The seeds were collected in 2018 and are at a nursery (indicated in the permit) until they are ready to plant in either 2020 or 2021. Surveys, monitoring and transplant will continue per the Mitigation Plan and registration.

A total of 17 butternut trees were found in the expansion lands in 2013-2014. An assessment was completed for these trees and provided to MNRF. It is expected that a re-assessment of the trees will occur in 2020 to ensure results of the original assessment are still valid.

We would appreciate any information you have on the subject property or general area that should be considered in our fieldwork this year, and request your approval and/or comments on this work plan. No formal pre-consultation has occurred with agencies yet, but with the field season starting, we need to get started on site works soon. We would also appreciate confirmation of any survey protocols for bats and whip-poor-will (or other species indicated in the work plan) that MECP requires for this area.

If you have any questions, or require any further information, please contact me.

All the best,

Kyle

Kyle Fleming, BSc. (Wildlife)
Senior Ecologist/Owner

ROOTS ENVIRONMENTAL

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APPENDIX B

Desktop Review

NHIC Data

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OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
998200	SPECIES	Eastern Milksnake	Lampropeltis triangulum		NAR	SC	17NK9616	
998200	SPECIES	Bobolink	Dolichonyx oryzivorus		THR	THR	17NK9616	
998191	SPECIES	Chestnut Lamprey - Great Lakes - Upper St. Lawrence populations	Ichthyomyzon castaneus pop. 1		DD	DD	17NK9517	
998191	SPECIES	Eastern Milksnake	Lampropeltis triangulum		NAR	SC	17NK9517	
998191	SPECIES	Silver Lamprey (Great Lakes - Upper St. Lawrence populations)	Ichthyomyzon unicuspis pop. 1		SC	SC	17NK9517	
998191	SPECIES	Northern Brook Lamprey	Ichthyomyzon fossor		SC	SC	17NK9517	
998191	SPECIES	Eastern Meadowlark	Sturnella magna		THR	THR	17NK9517	
998191	SPECIES	Butternut	Juglans cinerea		END	END	17NK9517	
998191	SPECIES	Blanding's Turtle	Emydoidea blandingii		THR	END	17NK9517	
998201	SPECIES	Chestnut Lamprey - Great Lakes - Upper St. Lawrence populations	Ichthyomyzon castaneus pop. 1		DD	DD	17NK9617	
998201	SPECIES	Eastern Milksnake	Lampropeltis triangulum		NAR	SC	17NK9617	
998201	SPECIES	Silver Lamprey (Great Lakes - Upper St. Lawrence populations)	Ichthyomyzon unicuspis pop. 1		SC	SC	17NK9617	
998201	SPECIES	Northern Brook Lamprey	Ichthyomyzon fossor		SC	SC	17NK9617	
998201	SPECIES	Eastern Meadowlark	Sturnella magna		THR	THR	17NK9617	
998201	SPECIES	Bobolink	Dolichonyx oryzivorus		THR	THR	17NK9617	

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
998201	SPECIES	Wood Thrush	Hylocichla mustelina		SC	THR	17NK9617	
998201	SPECIES	Butternut	Juglans cinerea		END	END	17NK9617	
998201	RESTRICTED SPECIES	Restricted Species	Restricted Species				17NK9617	
998190	SPECIES	Butternut	Juglans cinerea		END	END	17NK9516	

Species list for square 17NK91 (number of entries returned: 108)

Region	Square	Species	Breeding Evidence				Point Counts			
			Max BE	Categ	#Sq	Atlasser Name	#PC	%PC	Abun	#Sq
13	17NK91	Canada Goose	H	POSS	1	Morris Gervais	3	9.38	1.0625	1
13	17NK91	Trumpeter Swan	FY	CONF	1					
13	17NK91	Mallard	H	POSS	1	Dave Fewster	2	6.25	0.1563	1
13	17NK91	Ruffed Grouse	H	POSS	1	Morris Gervais	1	3.13	0.0313	1
13	17NK91	Wild Turkey	NE	CONF	1	Morris Gervais	1	3.13	0.0938	1
13	17NK91	American Bittern	H	POSS	1	David J Walsh	1	3.13	0.0313	1
13	17NK91	Great Blue Heron	NB	CONF	1	Morris Gervais	2	6.25	0.0625	1
13	17NK91	Green Heron	H	POSS	1	Dave Fewster	1	3.13	0.0313	1
13	17NK91	Black-crowned Night-Heron	AE	CONF	1	Don R.A. Scanlan				
13	17NK91	Osprey	FY	CONF	1	Don R.A. Scanlan				
13	17NK91	Northern Harrier	P	PROB	1	Dave Fewster				
13	17NK91	Sharp-shinned Hawk	H	POSS	1	Don R.A. Scanlan				
13	17NK91	Cooper's Hawk	H	POSS	1	Morris Gervais	1	3.13	0.0313	1
13	17NK91	Broad-winged Hawk	H	POSS	1	Don R.A. Scanlan				
13	17NK91	Red-tailed Hawk	P	PROB	1	Don R.A. Scanlan	1	3.13	0.0625	1
13	17NK91	American Kestrel	NE	CONF	1	Morris Gervais				
13	17NK91	Virginia Rail	H	POSS	1	David J Walsh	3	9.38	0.2188	1
13	17NK91	Sora	H	POSS	1	David J Walsh	3	9.38	0.125	1
13	17NK91	Killdeer	NY	CONF	1	Morris Gervais	6	18.75	0.2188	1
13	17NK91	Rock Pigeon	AE	CONF	1	Morris Gervais	1	3.13	0.0938	1
13	17NK91	Spotted Sandpiper	FY	CONF	1	Don R.A. Scanlan	2	6.25	0.0938	1
13	17NK91	Upland Sandpiper	H	POSS	1	Dave Fewster	1	3.13	0.0313	1
13	17NK91	Common Snipe	S	POSS	1	2 atlassers				
13	17NK91	American Woodcock	S	POSS	1	Morris Gervais				
13	17NK91	Mourning Dove	D	PROB	1	Morris Gervais	6	18.75	0.25	1
13	17NK91	Black-billed Cuckoo	H	POSS	1	Morris Gervais				
13	17NK91	Eastern Screech-Owl	S	POSS	1	Glenn Coady				
13	17NK91	Great Horned Owl	P	PROB	1	Fergus I Nicoll	1	3.13	0.0313	1
13	17NK91	Barred Owl	D	PROB	1	Morris Gervais				
13	17NK91	Common Nighthawk	P	PROB	1	Don R.A. Scanlan				
13	17NK91	Whip-poor-will	T	PROB	1	Fergus I Nicoll				
13	17NK91	Ruby-throated Hummingbird	D	PROB	1					
13	17NK91	Belted Kingfisher	H	POSS	1	Don R.A. Scanlan	2	6.25	0.0625	1
13	17NK91	Yellow-bellied Sapsucker	NY	CONF	1	Don R.A. Scanlan	1	3.13	0.0625	1
13	17NK91	Downy Woodpecker	N	PROB	1	Mark Peck	4	12.5	0.125	1
13	17NK91	Hairy Woodpecker	CF	CONF	1	Don R.A. Scanlan				
13	17NK91	Northern Flicker	D	PROB	1	Morris Gervais	2	6.25	0.0625	1
13	17NK91	Pileated Woodpecker	P	PROB	1	Dave Fewster	2	6.25	0.0625	1
13	17NK91	Eastern Wood-Pewee	S	POSS	1	Don R.A. Scanlan	6	18.75	0.2188	1
13	17NK91	Alder Flycatcher	NY	CONF	1	Don R.A. Scanlan				
13	17NK91	Willow Flycatcher	H	POSS	1	David J Walsh	2	6.25	0.0938	1
13	17NK91	Least Flycatcher	H	POSS	1	David J Walsh	3	9.38	0.0938	1
13	17NK91	Eastern Phoebe	NY	CONF	1	Don R.A. Scanlan	1	3.13	0.0313	1
13	17NK91	Great Crested Flycatcher	A	PROB	1	Don R.A. Scanlan	7	21.88	0.2813	1
13	17NK91	Eastern Kingbird	P	PROB	1	Dave Fewster	5	15.63	0.1563	1
13	17NK91	Blue-headed Vireo	A	PROB	1	Don R.A. Scanlan				
13	17NK91	Warbling Vireo	P	PROB	1	Morris Gervais				
13	17NK91	Red-eyed Vireo	NE	CONF	1	Morris Gervais	9	28.13	0.4375	1
13	17NK91	Blue Jay	P	PROB	1	Don R.A. Scanlan	12	37.5	0.9063	1
13	17NK91	American Crow	NB	CONF	1	Morris Gervais	16	50.0	0.7813	1
13	17NK91	Horned Lark	NY	CONF	1	Morris Gervais				
13	17NK91	Tree Swallow	NY	CONF	1	2 atlassers	15	46.88	1.5938	1
13	17NK91	Bank Swallow	H	POSS	1	Don R.A. Scanlan				
13	17NK91	Cliff Swallow	AE	CONF	1	Stan Vasiliauskas				
13	17NK91	Barn Swallow	NY	CONF	1	Morris Gervais	2	6.25	0.2813	1
13	17NK91	Black-capped Chickadee	FY	CONF	1	Dave Fewster	11	34.38	0.6563	1
13	17NK91	Red-breasted Nuthatch	H	POSS	1	Don R.A. Scanlan				
13	17NK91	White-breasted Nuthatch	H	POSS	1	2 atlassers	5	15.63	0.1563	1
13	17NK91	Brown Creeper	H	POSS	1					

13	17NK91	House Wren	A	PROB	1	Don R.A. Scanlan	7	21.88	0.25	1
13	17NK91	Winter Wren	S	POSS	1					
13	17NK91	Sedge Wren	T	PROB	1	Dave Fewster				
13	17NK91	Marsh Wren	H	POSS	1	David J Walsh	5	15.63	0.5	1
13	17NK91	Eastern Bluebird	NY	CONF	1	Don R.A. Scanlan	1	3.13	0.0313	1
13	17NK91	Veery	A	PROB	1	Don R.A. Scanlan	4	12.5	0.1563	1
13	17NK91	Hermit Thrush	S	POSS	1	Don R.A. Scanlan				
13	17NK91	Wood Thrush	NB	CONF	1		5	15.63	0.1875	1
13	17NK91	American Robin	NY	CONF	1	Morris Gervais	15	46.88	0.9375	1
13	17NK91	Gray Catbird	NE	CONF	1	Don R.A. Scanlan	1	3.13	0.0313	1
13	17NK91	Brown Thrasher	D	PROB	1	Morris Gervais	1	3.13	0.0313	1
13	17NK91	European Starling	AE	CONF	1	Dave Fewster	10	31.25	1.3438	1
13	17NK91	Cedar Waxwing	NE	CONF	1	Morris Gervais	2	6.25	0.1563	1
13	17NK91	Blue-winged Warbler	S	POSS	1					
13	17NK91	Golden-winged Warbler	CF	CONF	1	Don R.A. Scanlan				
13	17NK91	Nashville Warbler	P	PROB	1	Morris Gervais				
13	17NK91	Yellow Warbler	P	PROB	1	Kenneth F Abraham	9	28.13	0.3125	1
13	17NK91	Chestnut-sided Warbler	D	PROB	1	Morris Gervais	2	6.25	0.0625	1
13	17NK91	Black-throated Green Warbler	S	POSS	1	2 atlassers	3	9.38	0.0938	1
13	17NK91	Black-and-white Warbler	S	POSS	1	Don R.A. Scanlan	6	18.75	0.25	1
13	17NK91	American Redstart	S	POSS	1	Don R.A. Scanlan	3	9.38	0.0938	1
13	17NK91	Ovenbird	NB	CONF	1	Morris Gervais	12	37.5	0.75	1
13	17NK91	Northern Waterthrush	S	POSS	1	Dave Fewster	2	6.25	0.125	1
13	17NK91	Mourning Warbler	S	POSS	1	2 atlassers	1	3.13	0.0313	1
13	17NK91	Common Yellowthroat	CF	CONF	1		6	18.75	0.1875	1
13	17NK91	Canada Warbler	CF	CONF	1	Don R.A. Scanlan				
13	17NK91	Eastern Towhee	S	POSS	1	Don R.A. Scanlan	1	3.13	0.0313	1
13	17NK91	Chipping Sparrow	AE	CONF	1	Don R.A. Scanlan	4	12.5	0.125	1
13	17NK91	Field Sparrow	S	POSS	1	Don R.A. Scanlan	2	6.25	0.0625	1
13	17NK91	Vesper Sparrow	NY	CONF	1	Morris Gervais	2	6.25	0.0625	1
13	17NK91	Savannah Sparrow	CF	CONF	1	Dave Fewster	6	18.75	0.25	1
13	17NK91	Grasshopper Sparrow	FY	CONF	1					
13	17NK91	Song Sparrow	CF	CONF	1	Don R.A. Scanlan	12	37.5	0.7813	1
13	17NK91	Swamp Sparrow	A	PROB	1		3	9.38	0.125	1
13	17NK91	White-throated Sparrow	P	PROB	1	Morris Gervais	2	6.25	0.0938	1
13	17NK91	Dark-eyed Junco	P	PROB	1	Morris Gervais				
13	17NK91	Scarlet Tanager	S	POSS	1	Morris Gervais				
13	17NK91	Northern Cardinal	T	PROB	1	Morris Gervais	5	15.63	0.1875	1
13	17NK91	Rose-breasted Grosbeak	NE	CONF	1	Morris Gervais	4	12.5	0.1563	1
13	17NK91	Indigo Bunting	CF	CONF	1	Morris Gervais	4	12.5	0.125	1
13	17NK91	Bobolink	P	PROB	1	Dave Fewster	3	9.38	0.125	1
13	17NK91	Red-winged Blackbird	FY	CONF	1	Dave Fewster	14	43.75	1.3125	1
13	17NK91	Eastern Meadowlark	S	POSS	1	Dave Fewster	5	15.63	0.2188	1
13	17NK91	Common Grackle	FY	CONF	1	Dave Fewster	9	28.13	0.9375	1
13	17NK91	Brown-headed Cowbird	P	PROB	1	Morris Gervais	6	18.75	0.25	1
13	17NK91	Baltimore Oriole	S	POSS	1	Morris Gervais	4	12.5	0.125	1
13	17NK91	House Finch	NY	CONF	1	Fergus I Nicoll	2	6.25	0.0625	1
13	17NK91	American Goldfinch	NY	CONF	1	Morris Gervais	19	59.38	1.2188	1
13	17NK91	House Sparrow	AE	CONF	1	Don R.A. Scanlan				

New data summary | Download results

Species list in taxonomic order for square 17NK91

All species

Number of rows of data displayed below: 16.

Species #	Common Name	# of Records	Earliest Yr	Latest Yr
1	Blanding's Turtle	19	2006	2018
3	Midland Painted Turtle	7	1988	2018
6	Snapping Turtle	9	1975	2019
12	Eastern Gartersnake	6	1972	2014
17	Massasauga	1	1963	1963
18	Milksnake	3	2009	2018
21	Red-bellied Snake	5	2009	2012
25	American Bullfrog	2	1997	1998
27	Gray Treefrog	15	1990	2012
28	Green Frog	13	1931	2014
30	Northern Leopard Frog	20	1931	2014
32	Spring Peeper	34	1979	2014
33	Western Chorus Frog	6	1997	1998
34	Wood Frog	10	1979	2013
35	American Toad	15	1972	2005
42	Four-toed Salamander	1	2018	2018

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APPENDIX C

Species Lists

Lewis Pit Expansion - 2857 Seadon Road- Springwater

SCIENTIFIC NAME	ENGLISH COMMON NAME	S RANK	SARO	SARA	G RANK
Abies balsamea	Balsam Fir	S5			G5
Acer negundo	Manitoba Maple	S5			G5
Acer rubrum	Red Maple	S5			G5
Acer saccharum	Sugar Maple	S5			G5
Actaea pachypoda	White Baneberry	S5			G5
Adiantum pedatum	Northern Maidenhair Fern	S5			G5
Alliaria petiolata	Garlic Mustard	SNA			GNR
Allium tricoccum var. tricoccum	Wild Leek	S4			G5
Ambrosia trifida	Great Ragweed	S5			G5
Amelanchier laevis	Smooth Serviceberry	S5			G5
Anemonastrum canadense	Canada Anemone	S5			G5
Apocynum androsaemifolium	Spreading Dogbane	S5			G5
Aquilegia canadensis	Red Columbine	S5			G5
Aralia nudicaulis	Wild Sarsaparilla	S5			G5
Arctium lappa	Great Burdock	SNA			GNR
Arisaema triphyllum	Jack-in-the-pulpit	S5			G5
Asarum canadense	Canada Wild-ginger	S5			G5
Asclepias exaltata	Poke Milkweed	S4			G5
Asclepias syriaca	Common Milkweed	S5			G5
Betula alleghaniensis	Yellow Birch	S5			G5
Betula papyrifera	Paper Birch	S5			G5
Calamagrostis canadensis	Bluejoint Reedgrass	S5			G5
Carex arctata	Drooping Woodland Sedge	S5			G5
Carex communis	Fibrous-root Sedge	S5			G5
Carex crinita	Fringed Sedge	S5			G5
Carex pensylvanica	Pennsylvania Sedge	S5			G5
Carex plantaginea	Plantain-leaved Sedge	S5			G5
Carex rosea	Rosy Sedge	S5			G5
Caulophyllum thalictroides	Blue Cohosh	S5			G5
Chimaphila umbellata	Common Pipsissewa	S5			G5
Claytonia caroliniana	Carolina Spring Beauty	S5			G5
Clematis occidentalis	Purple Clematis	S4			G5
Convolvulus arvensis	Field Bindweed	SNA			GNR
Corallorhiza odontorhiza	Autumn Coralroot	S2S3			G5
Cornus alternifolia	Alternate-leaved Dogwood	S5			G5
Cornus rugosa	Round-leaved Dogwood	S5			G5
Daucus carota	Wild Carrot	SNA			GNR
Desmodium canadense	Canada Tick-trefoil	S4			G5
Diervilla lonicera	Northern Bush-honeysuckle	S5			G5
Dryopteris carthusiana	Spinulose Wood Fern	S5			G5
Dryopteris intermedia	Evergreen Wood Fern	S5			G5
Dryopteris marginalis	Marginal Wood Fern	S5			G5
Elymus repens	Quackgrass	SNA			GNR
Epifagus virginiana	Beechdrops	S5			G5
Epipactis helleborine	Broad-leaved Helleborine	SNA			GNR

SCIENTIFIC NAME	ENGLISH COMMON NAME	S RANK	SARO	SARA	G RANK
Equisetum arvense	Field Horsetail	S5			G5
Erythronium americanum	Yellow Trout-lily	S5			G5
Eurybia macrophylla	Large-leaved Aster	S5			G5
Fagus grandifolia	American Beech	S4			G5
Fraxinus americana	White Ash	S4			G5
Fraxinus pennsylvanica	Red Ash	S4			G5
Galium asprellum	Rough Bedstraw	S5			G5
Geum canadense	Canada Avens	S5			G5
Gymnocarpium dryopteris	Common Oak Fern	S5			G5
Hepatica acutiloba	Sharp-lobed Hepatica	S5			G5T5
Hepatica americana	Round-lobed Hepatica	S5			G5T5
Hylodesmum glutinosum	Large Tick-trefoil	S4			G5
Impatiens capensis	Spotted Jewelweed	S5			G5
Juglans cinerea	**Butternut**	**S2?**	**END**	**END**	**G3**
Lilium canadense	Canada Lily	S1?			G5
Lonicera tatarica	Tatarian Honeysuckle	SNA			GNR
Maianthemum canadense	Wild Lily-of-the-valley	S5			G5
Maianthemum racemosum	Large False Solomon's Seal	S5			G5T5
Maianthemum stellatum	Star-flowered False Solomon's Seal	S5			G5
Matricaria discoidea	Pineappleweed	SNA			G5
Matteuccia struthiopteris	Ostrich Fern	S5			G5
Medicago sativa	Alfalfa	SNA			GNR
Melilotus albus	White Sweet-clover	SNA			G5
Milium effusum	Wood Millet	S4S5			G5
Mitchella repens	Partridgeberry	S5			G5
Mitella diphylla	Two-leaved Mitrewort	S5			G5
Monotropa uniflora	Indian-pipe	S5			G5
Onoclea sensibilis	Sensitive Fern	S5			G5
Ostrya virginiana	Eastern Hop-hornbeam	S5			G5
Panicum virgatum	Old Switch Panicgrass	S4			G5
Parathelypteris noveboracensis	New York Fern	S4S5			G5
Petasites frigidus var. palmatus	Palmate Coltsfoot	S5			G5T5
Picea glauca	White Spruce	S5			G5
Picea pungens	Blue Spruce	SNA			G5
Pinus resinosa	Red Pine	S5			G5
Pinus resinosa	Red Pine	S5			G5
Pinus strobus	Eastern White Pine	S5			G5
Pinus sylvestris	Scots Pine	SNA			GNR
Poa pratensis	Kentucky Bluegrass	S5			G5
Podophyllum peltatum	May-apple	S5			G5
Polystichum acrostichoides	Christmas Fern	S5			G5
Populus alba	White Poplar	SNA			G5
Populus balsamifera	Balsam Poplar	S5			G5
Populus grandidentata	Large-toothed Aspen	S5			G5
Populus tremuloides	Trembling Aspen	S5			G5
Potentilla anserina	Silverweed	S5			G5

SCIENTIFIC NAME	ENGLISH COMMON NAME	S RANK	SARO	SARA	G RANK
Prunus serotina	Black Cherry	S5			G5
Prunus serotina	Black Cherry	S5			G5
Prunus virginiana	Chokecherry	S5			G5
Pteridium aquilinum	Bracken Fern	S5			G5
Pyrola elliptica	Shinleaf	S5			G5
Quercus rubra	Northern Red Oak	S5			G5
Ranunculus acris	Common Buttercup	SNA			G5
Rhus typhina	Staghorn Sumac	S5			G5
Ribes cynosbati	Eastern Prickly Gooseberry	S5			G5
Rubus idaeus	Red Raspberry	S5			G5
Rubus occidentalis	Black Raspberry	S5			G5
Rubus odoratus	Purple-flowering Raspberry	S5			G5
Sambucus racemosa	Red Elderberry	S5			G5
Solidago canadensis	Canada Goldenrod	S5			G5
Solidago gigantea	Giant Goldenrod	S5			G5
Streptopus lanceolatus	Rose Twisted-stalk	S5			G5
Symphyotrichum lateriflorum	Calico Aster	S5			G5
Symphyotrichum puniceum	Purple-stemmed Aster	S5			G5
Taraxacum officinale	Common Dandelion	SNA			G5
Thalictrum dioicum	Early Meadow-rue	S5			G5
Thuja occidentalis	Eastern White Cedar	S5			G5
Tiarella cordifolia	Heart-leaved Foamflower	S5			G5
Tilia americana	Basswood	S5			G5
Tilia americana	Basswood	S5			G5
Toxicodendron radicans	Poison Ivy	S5			G5
Trifolium repens	White Clover	SNA			GNR
Trillidium undulatum	Painted Trillium	S4			G5
Trillium erectum	Red Trillium	S5			G5
Trillium grandiflorum	White Trillium	S5			G5
Tsuga canadensis	Eastern Hemlock	S5			G5
Ulmus americana	White Elm	S5			G4
Uvularia grandiflora	Large-flowered Bellwort	S5			G5
Viburnum acerifolium	Maple-leaved Viburnum	S5			G5
Vicia americana	American Vetch	S5			G5
Viola canadensis	Canada Violet	S5			G5
Vitis riparia	Riverbank Grape	S5			G5

Lewis Pit Expansion - 2857 Seadon Road- Springwater

SCIENTIFIC NAME	COMMON NAME	S RANK	SARO	SARA	G RANK
Archilochus colubris	Ruby-throated Hummingbird	S5B			G5
Bonasa umbellus	Ruffed Grouse	S5			G5
Buteo jamaicensis	Red-tailed Hawk	S5			G5
Catharus fuscescens	Veery	S5B			G5
Certhia americana	Brown Creeper	S5			G5
Coccyzus erythropthalmus	Black-billed Cuckoo	S4S5B			G5
Colaptes auratus	Northern Flicker	S4B			G5
Contopus virens	Eastern Wood-pewee	S4B	SC	SC	G5
Corvus brachyrhynchos	American Crow	S5B			G5
Cyanocitta cristata	Blue Jay	S5B			G5
Dryobates pubescens	Downy Woodpecker	S5			G5
Dryobates villosus	Hairy Woodpecker	S5			G5
Dryocopus pileatus	Pileated Woodpecker	S5			G5
Dumetella carolinensis	Gray Catbird	S4B			G5
Empidonax minimus	Least Flycatcher	S5B			G5
Hylocichla mustelina	Wood Thrush	S4B	SC	THR	G4
Icterus galbula	Baltimore Oriole	S4B			G5
Leiothlypis celata	Orange-crowned Warbler	S5B			G5
Melanerpes carolinus	Red-bellied Woodpecker	S5			G5
Meleagris gallopavo	Wild Turkey	S5			G5
Melospiza melodia	Song Sparrow	S5B			G5
Mniotilta varia	Black-and-white Warbler	S5B			G5
Myiarchus crinitus	Great Crested Flycatcher	S5B			G5
Passer domesticus	House Sparrow	SNA			G5
Passerina cyanea	Indigo Bunting	S5B			G5
Poecile atricapillus	Black-capped Chickadee	S5B			G5
Sayornis phoebe	Eastern Phoebe	S5B			G5
Seiurus aurocapilla	Ovenbird	S5B			G5
Setophaga fusca	Blackburnian Warbler	S5B			G5
Setophaga pensylvanica	Chestnut-sided Warbler	S5B			G5
Setophaga petechia	Yellow Warbler	S5B			G5
Sitta canadensis	Red-breasted Nuthatch	S5			G5
Spinus tristis	American Goldfinch	S5			G5
Strix varia	Barred Owl	S5			G5
Sturnus vulgaris	European Starling	SNA			G5
Tachycineta bicolor	Tree Swallow	S4S5B			G5
Turdus migratorius	American Robin	S5B			G5
Tyrannus tyrannus	Eastern Kingbird	S4B			G5
Vireo gilvus	Warbling Vireo	S5B			G5
Vireo olivaceus	Red-eyed Vireo	S5B			G5
Vireo solitarius	Blue-headed Vireo	S5B			G5
Zonotrichia albicollis	White-throated Sparrow	S5			G5

Lewis Pit Expansion - 2857 Seadon Road- Springwater

SCIENTIFIC NAME	COMMON NAME	S RANK	SARO	SARA	G RANK
Reptiles					
Thamnophis sirtalis sirtalis	Eastern Gartersnake	S5			G5T5
Mammals					
Sciurus carolinensis	Eastern Gray Squirrel	S5			G5
Ondatra zibethicus	Muskrat	S5			G5
Erethizon dorsatum	Porcupine	S5			G5
Procyon lotor	Northern Raccoon	S5			G5
Odocoileus virginianus	White-tailed Deer	S5			G5
Ursus americanus	American Black Bear	S5			G5
Canis latrans	Coyote	S5			G5
Mephitis mephitis	Striped Skunk	S5			G5

APPENDIX D

Significant Wildlife Habitat Assessment

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
2857 Seadon Road- Township of Springwater

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale:** Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus, evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available. Information Sources • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities • Sites documented through waterfowl planning processes (*e.g.* EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius area, dependent on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMiST Index #7 provides development effects and mitigation measures.	No suitable habitat present
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). Information Sources • Environment Canada • Naturalist clubs often are aware of staging/stopover areas • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (*e.g.* EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Areas	Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. • The combined area of the ELC ecosites and a 100m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMiST Index #7 provides development effects and mitigation measures.	No suitable habitat present

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
2857 Seadon Road- Township of Springwater

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Shorebird Migratory Stopover Area **Rationale:** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH. Information Sources • Western hemisphere shorebird reserve network • Canadian Wildlife Service (CWS) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #8 provides development effects and mitigation measures.	No suitable habitat present
Raptor Wintering Area **Rationale:** Sites used by multiple species of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Special Concern: Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering sites (hawk/owl) need to be > 20 ha with a combination of forest and upland. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be windswept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting. Information Sources: • OMNRF Ecologist or Biologist Field Naturalist Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts Reports and other information available from Conservation Authorities.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #10 and #11 provides development effects and mitigation measures.	No suitable habitat present

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
2857 Seadon Road- Township of Springwater

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Bat Hibernacula **Rationale:** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH • The locations of bat hibernacula are relatively poorly known. Information Sources • OMNRF for possible locations and contact for local experts • Natural Heritage Information Center (NHIC) Bat Hibernaculum Ministry of Northern • Development and Mines for location of mine shafts. • Clubs that explore caves (*e.g.* Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200m radius around the entrance of the hibernaculum, for most development types and 1000m for wind farms • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects. • SWHMiST Index #1 provides development effects and mitigation measures.	No suitable habitat present.
Bat Maternity Colonies **Rationale:** Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario. • Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred. Information Sources • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by; o >10 Big Brown Bats o >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #12 provides development effects and mitigation measures.	**Potential.** **Treed habitat in ELC Units FOD3-1, FOM6-1& FOD2-4 may support bat maternity**

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SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Turtle Wintering Areas **Rationale:** Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles; ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. Information Sources • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF Ecologist or Biologist • Field Naturalist clubs • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) • Congregation of turtles is more common where wintering areas are limited and therefore significant • SWHMiST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	No suitable habitat is present.
Reptile Hibernaculum **Rationale:** Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**Snakes:** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **Special Concern:** Milksnake Eastern Ribbonsnake **Lizard:** **Special Concern** (Southern Shield population)**:** Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (*e.g.* old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalists clubs • University herpetologists • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (*e.g.* foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) • Note: If there are Special Concern Species present, then site is SWH • Note: Sites for hibernation possess specific habitat parameters (*e.g.* temperature, humidity, *etc.*) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (*e.g.* mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • SWHMiST Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	No old stone fences, foundations or rock crevices found that would provide hibernacula habitat.

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
2857 Seadon Road- Township of Springwater

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Colonially -Nesting Bird Breeding Habitat (Bank and Cliff) **Rationale:** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. Information Sources • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas • Bird Studies Canada; *NatureCounts* http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.	Studies confirming: • Presence of 1 or more nesting sites with 8or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #4 provides development effects and mitigation measures.	No suitable habitat present
Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs) **Rationale:** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. Information Sources • Ontario Breeding Bird Atlas, colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • Natural Heritage Information Center (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from CAs. • MNRF District Offices • Local naturalist clubs	Studies confirming: • Presence of 5 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. • SWHMiST Index #5 provides development effects and mitigation measures.	No suitable habitat present

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
2857 Seadon Road- Township of Springwater

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Colonially -Nesting Bird Breeding Habitat (Ground) **Rationale:** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands. Information Sources • Ontario Breeding Bird Atlas, rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs. • Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices • Field Naturalist clubs	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #6 provides development effects and mitigation measures.	No suitable habitat present
Migratory Butterfly Stopover Areas **Rationale:** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral Special Concern Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: Field: CUM CUT CUS Forest: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario. • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes. Information Sources • OMNRF (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 **or** >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • SWHMiST Index #16 provides development effects and mitigation measures.	No suitable habitat present

SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Landbird Migratory Stopover Areas **Rationale:** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website. All migratory songbirds. Canadian Wildlife Service Ontario website:	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Ontario are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. • The largest sites are more significant. • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH. Information Sources • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #9 provides development effects.	No suitable habitat present
Deer Yarding Areas **Rationale:** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual". • Woodlots with high densities of deer due to artificial feeding are not significant.	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	Deer wintering/yarding habitat not identified by MNRF in the Study Area.

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SEASONAL CONCENTRATIONS OF AREAS OF ANIMALS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Deer Winter Congregation Areas **Rationale:** Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant. Information Sources • MNRF District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	No suitable habitat present. See above.

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
2857 Seadon Road- Township of Springwater

RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	**Candidate SWH**			**Confirmed SWH**	**Assessment**
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
Cliffs and Talus Slopes **Rationale:** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO TAS TAT CLO CLS CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	Most cliff and talus slopes occur along the Niagara Escarpment. Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information available on their website • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes • SWHMiST Index #21 provides development effects and mitigation measures.	No suitable habitat present
Sand Barren **Rationale:** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%.	A sand barren area >0.5ha in size. Information Sources • MNRF Districts • Natural Heritage Information Center (NHIC) has location information available on their website. • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.) • SWHMiST Index #20 provides development effects and mitigation measures.	No suitable habitat present
Alvar **Rationale:** Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Species:** 1) *Carex crawei* 2) *Panicum philadelphicum* 3) *Eleocharis compressa* 4) *Scutellaria parvula* 5) *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 6E.	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover.	An Alvar site > 0.5 ha in size. Information Sources • Alvars of Ontario (2000), Federation of Ontario Naturalists. • Ontario Nature – Conserving Great Lakes Alvars. • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	• Field studies that identify four of the five **Alvar Indicator Species** at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. • SWHMiST Index #17 provides development effects and mitigation measures.	No suitable habitat present

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RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	**Candidate SWH**			**Confirmed SWH**	**Assessment**
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
Old Growth Forest **Rationale:** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species are >140 years old, then the area containing these trees is Significant Wildlife Habitat. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present). • The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics. • SWHMiST Index #23 provides development effects and mitigation measures.	No suitable habitat present
Savannah **Rationale:** Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #18 provides development effects and mitigation measures.	No suitable habitat present
Tallgrass Prairie **Rationale:** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #19 provides development effects and mitigation measures.	No suitable habitat present

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RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	**Candidate SWH**			**Confirmed SWH**	**Assessment**
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
Other Rare Vegetation Communities **Rationale:** Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M The OMNRF/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST Index #37 provides development effects and mitigation measures.	No suitable habitat present

SPECIALIZED HABITAT FOR WILDLIFE					
Wildlife Habitat	**Wildlife Species**	**Candidate SWH**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Waterfowl Nesting Area **Rationale:** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to PSW	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from Conservation Authorities.	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST Index #25 provides development effects and mitigation measures.	No suitable habitat present

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RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	**Candidate SWH**			**Confirmed SWH**	**Assessment**
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **<u>Rationale:</u>** Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey Special Concern Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. • Nests located on man-made objects are not to be included as SWH (*e.g.* telephone poles and constructed nesting platforms). <u>Information Sources</u> • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on-site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid-March to mid-August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #26 provides development effects and mitigation measures.	No suitable habitat present

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RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	**Candidate SWH**			**Confirmed SWH**	**Assessment**
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
Woodland Raptor Nesting Habitat **Rationale:** Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. Interior habitat determined with a 200m buffer • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. Information Sources • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk– A 100m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial. (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST Index #27 provides development effects and mitigation measures.	No stick nests observed on or adjacent to the site.
Turtle Nesting Areas **Rationale:** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle Special Concern Species Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. Information Sources • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	No suitable habitat present.

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
2857 Seadon Road- Township of Springwater

RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	**Candidate SWH**			**Confirmed SWH**	**Assessment**
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
Seeps and Springs **Rationale:** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species. Information Sources • Topographical Map • Thermography • Hydrological surveys conducted by Conservation Authorities and MOE. • Field Naturalists clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. • SWHMiST Index #30 provides development effects and mitigation measures.	No seeps/springs observed.
Amphibian Breeding Habitat (Woodland). **Rationale:** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m^2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records. • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service • Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm; • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • SWHMiST Index #14 provides development effects and mitigation measures.	No suitable habitat present.

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RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	**Candidate SWH**			**Confirmed SWH**	**Assessment**
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
Amphibian Breeding Habitat (Wetlands) **Rationale:** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (*e.g.* Bull Frog) may be adjacent to woodlands.	• Wetlands>500m^2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations • Reports and other information available from Conservation Authorities	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. **or;** Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #15 provides development effects and mitigation measures.	No suitable habitat present.
Woodland Area-Sensitive Bird Breeding Habitat Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Special Concern: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat. Information Sources • Local bird clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #34 provides development effects and mitigation measures.	Habitat does not meet criteria. Large woodland blocks > 30 ha with interior habitat > 200 m from an edge not present in Study Area.

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
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HABITAT FOR SPECIES OF CONSERVATION CONCERN (NOT INCLUDING ENDANGERED OR THREATENED SPECIES)					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Marsh Breeding Bird Habitat **Rationale:** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. Information Sources • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Center (NHIC) Records. • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or **Marsh Wren** 1 pair of Sandhill Cranes; **or** breeding by any combination of 5 or more of the listed species. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #35 provides development effects and mitigation measures.	No suitable habitat present.
Open Country Bird Breeding Habitat Sources Defining Criteria **Rationale:** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #32 provides development effects and mitigation measures.	No suitable habitat present
Shrub/Early Successional Bird Breeding Habitat **Rationale:** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	Large field areas succeeding to shrub and thicket habitats>10haclxiv in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (*i.e.* no row-cropping, haying or live-stock pasturing in the last 5 years). • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • SWHMiST Index #33 provides development effects and mitigation measures.	No suitable habitat present

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
2857 Seadon Road- Township of Springwater

HABITAT FOR SPECIES OF CONSERVATION CONCERN (NOT INCLUDING ENDANGERED OR THREATENED SPECIES)					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite Codes	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Terrestrial Crayfish **Rationale:** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. Information Sources • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998.	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult. • SWHMiST Index #36 provides development effects and mitigation measures.	No suitable habitat present
Special Concern and Rare Wildlife Species **Rationale:** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites Information Sources • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information" : http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species *e.g.* specific nesting habitat or foraging habitat. • SWHMiST Index #37 provides development effects and mitigation measures.	**Yes, habitat present.** **Eastern Wood-Pewee and Wood Thrush present on site in ELC units FOD3-1 & FOM6-1.**

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
2857 Seadon Road- Township of Springwater

ANIMAL MOVEMENT CORRIDORS					
Wildlife Habitat	**Wildlife Species**	**Candidate SHW**		**Confirmed SWH**	**Assessment**
		ELC Ecosite	**Habitat Criteria and Information Sources**	**Defining Criteria**	
Amphibian Movement Corridors **Rationale:** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	Movement corridors between breeding habitat and summer habitat. • Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (**Amphibian Breeding Habitat –Wetland)** of this Schedule. Information Sources • MNRF District Office • Natural Heritage Information Center (NHIC) • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. • Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat. • SWHMiST Index #40 provides development effects and mitigation measures.	No suitable habitat present.
Deer Movement Corridors **Rationale:** Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when **Deer Wintering Habitat** is confirmed as SWH from Table 1.1 of this schedule. • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). Information Sources • MNRF District Office • Natural Heritage Information Center (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps <20m and if following riparian area with at least 15m of vegetation on both sides of waterway. • Shorter corridors are more significant than longer corridors. • SWHMiST Index #39 provides development effects and mitigation measures.	No deer yarding habitat on or adjacent to the property and hence no deer movement corridor function.

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
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EXCEPTIONS FOR ECOREGION 6E						
Eco District	**Wildlife Habitat and Species**	**Candidate**			**Confirmed SWH**	**Assessment**
		Ecosites	**Habitat Description**	**Habitat Criteria and Information**	**Defining Criteria**	
6E-14 **Rationale:** The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bears.	**Mast Producing Areas** Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	• Black bears require forested habitat that provides cover, winter hibernation sites, and mast-producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears.	Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech). Information Sources Important forest habitat for black bears may be identified by OMNRF.	All woodlands > 30ha with a 50%composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5	Not applicable
6E- 17 **Rationale:** Sharp-tailed grouse only occur on Manitoulin Island in Eco-region 6E, Leks are an important habitat to maintain their population	**Lek** Sharp-tailed Grouse	CUM CUS CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated.	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting Information Sources • OMNRF district office • Bird watching clubs • Local landowners • Ontario Breeding Bird Atlas	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat • SWHMiST Index #32 provides development effects and mitigation measures	Not applicable

APPENDIX E

CV for Kyle Fleming

Kyle Fleming, BSc. (Wildlife)

Senior Ecologist

Qualifications

Kyle has over 17 years' experience as an ecologist where he has been responsible completing over 250 Environmental Impact Studies, Species at Risk Assessments and Permitting, Habitat Restoration Plans, construction monitoring and related projects throughout Ontario. He is skilled in identification of species and their habitats in Ontario, is a Qualified Wetland Evaluator & Certified Butternut Assessor by the MNRF, trained and experienced in the use of Ecological Land Classification (ELC) and has been qualified as an expert at the Ontario Municipal Board/LPAT. His work is readily accepted by municipalities, conservation authorities and government agencies, and he is very familiar with environmental policies and legislation.

Professional Experience

MAY 2019 - PRESENT

Senior Ecologist/Owner / Roots Environmental, Barrie, ON

As the Senior Ecologist with Roots Environmental, Kyle is responsible the managing and implementation of environmental impact assessments, species at risk assessments and related studies for private and public sector clients throughout Ontario.

MAY 2004- MAY 2019

Senior Terrestrial Ecologist / Skelton, Brumwell & Associates, Barrie, ON

Responsible for completing Natural Environmental Reports, Environmental Impact Studies, Species at Risk Assessments for private and public sector clients throughout Ontario.

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APRIL – AUGUST 2003

Project Supervisor/Field Biologist / Hamer Environmental L.P., Mt. Vernon, WA, USA

Responsible for supervising and managing a threatened seabird monitoring project on state lands.

NOVEMBER 2002 – JANAURY 2003

Environmental Technician / Aqua-Terre Solutions Inc., Toronto, ON

Responsible for data management of water and soil sampling for sites across the GTA.

APRIL – AUGUST 2002

Field Biologist / Hamer Environmental L.P., Mt. Vernon, WA, USA

Conducted threatened seabird surveys on state lands to determine presence/absence relative to forestry activities.

MAY – AUGUST 2001

Field Technician/ University of Washington, Forks, WA, USA

Research project on nest predation of threatened seabirds and impacts of forestry practices on nesting sites.

Education

2002

Bachelor of Science in Wildlife Biology / University of Northern British Columbia, Prince George, BC

1998

Diploma in Fish and Wildlife Technology / Sir Sandford Fleming College, Lindsay, ON

Certifications/Courses

- Ontario Wetland Evaluation Training Course, 2004.
- Ecological Land Classification for Southern Ontario Training Course, 2005.
- Certificate of Participation: Wildlife Acoustics Bat Detector & Analysis Course, 2015.
- Ministry of Natural Resources (MNR) Butternut Assessment Course, 2009, 2014 & 2019.
- OPPI- The Planner at the Ontario Municipal Board Seminar, 2006.

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Project Experience:

Infrastructure

City of Cambridge – Blackbridge and Townline Roads Environmental Impact Study and Preliminary Design

Roots Environmental was retained to assist with the completion of an Environmental Impact Study (EIS) towards the Preliminary Design for a new roadway alignment and crossing over the Speed River at Black Bridge Road, as well as improvements to Townline Road including the replacement of the Irish Creek culvert and construction of a pedestrian bridge.

County of Peterborough – Selwyn Road (County Road 20) Environmental Assessment

This ongoing Municipal Class Environmental Assessment (EA) is be completed for the reconstruction of approximately 9.5km of County Road 20 (Selwyn Road) in the County of Peterborough. As part of the EA, a Natural Environment Assessment is being completed to assess natural features and ecological functions in the study area to assist in evaluating preferred alternatives for future proposed improvements.

Region of Durham – Columbus Road East and Grandview Street North Environmental Assessment

The Regional Municipality of Durham has initiated a Municipal Class Environmental Assessment (MCEA) for the future roadway improvements to Columbus Road East and Grandview Street North. Detailed field investigations have been undertaken to determine the presence of natural features in the study area that should be considered as part of future road improvements.

Region of Durham – Gamebridge Bridge Post Construction Monitoring

Post-construction monitoring is being completed under a MNRF/MECP Letter of Advice for species at risk bat species as a result of the tree clearing and bridge replacement in Gamebridge, ON. A monitoring plan was completed and approved by MECP, which included the installation of bat maternity structures, guano sampling and acoustic surveys.

County of Brant – Governor's Road Environmental Assessment

The County of Brant is conducting a Municipal Class Environmental Assessment (MCEA) to define a municipal road plan for portions of Governors Road West and Cleaver Road once aggregate extraction is completed within the study area. Detailed desktop review and field were completed to identify natural features that should be considered for preparation of the future road plan.

City of Oshawa – Windfields Drive West Connection Environmental Assessment

The City of Oshawa is completing an Environmental Assessment (EA) Study and preliminary design for a new Collector Road from Winfield's Farm Drive West to Winchester Road (approximately 310 meters) in accordance with the Municipal Class Environmental Assessment Act. As part of the EA, a Natural

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Infrastructure cont'd.

Environment Assessment (NEA) is being completed to evaluate design alternatives with respect to natural features or ecological functions within the Study Area.

Central Ontario – 407 ETR Interchanges
Roots Environmental was responsible for assisting with conducting a natural environment assessment of three interchanges along the 407ETR as part of an Environmental Assessment for improvements to the interchanges. Field studies and analysis was completed for each site to assist in determining the preferred alternative.

City of Oshawa – Conlin Road Detailed Design
As part of the detailed design of a multi-use path and improvements to Conlin Road, we are completing a Species at Risk Assessment, wetland delineation and edge management enhancement plan.

Region of Durham – Zephyr Road Environmental Impact Study
The Regional Municipality of Durham is completing an Environmental Impact Study (EIS) and Preliminary and Detailed Design for the proposed reconstruction of Regional Road 13 (Zephyr Road) from Regional Road 39 to Concession Road 4. Significant features were identified in study area including Provincially Significant Wetland, and mitigation measures were recommended to minimize impacts to this feature and its ecological functions.

Aggregates

Natural Environment Report (NER) Level I & II (Township of Minden Hills)
NER was prepared in accordance with the Aggregate Resources Act (ARA) for a wayside quarry adjacent to an existing licensed pit. Natural heritage features included Provincially Significant Wetlands (PSW), Significant Wildlife Habitat and Significant Woodlands. Mitigation measures were recommended to avoid impacts to these features and their related ecological functions.

Natural Heritage Evaluation (Oak Ridges Moraine)
A natural heritage evaluation was prepared in accordance with the Oak Ridges Moraine Conservation Plan for an amendment to the Site Plan of an existing gravel pit.

Natural Environment Report Level I & II (Township of McNab-Braeside)
NER completed in support of major site plan amendment for expansion of quarry under ARA. Significant Wildlife Habitat was identified which included provincially rare plant species, amphibian woodland ponds, area sensitive bird habitat and deer wintering habitat.

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ROOTS ENVIRONMENTAL

Aggregates cont'd.

Natural Environment Report Level I & II (Township of Galway-Harvey- Cavendish)
NER completed in support of new aggregate pit within Crown Land permit. Significant Wildlife Habitat (Great Blue Heron nesting site) and significant wetlands were identified, and mitigation measures recommended for their protection.

Natural Environment Report Level I & II (Township of Garafraxa)
Natural Environment Report completed in support of a major site plan amendment for a small woodlot which had remain undisturbed. Field investigations were focused on this woodlot and identified butternut trees. The butternut trees were assessed using standard protocols.

Butternut Assessment (Township of Oro Medonte)
An assessment was completed to Ministry of Natural Resource' standards for endangered butternut trees found within an existing pit.

Natural Environment Report Level I & II (Township of West Grey)
As part of an above the water table aggregate pit application, a Natural Environment Report was prepared due to the presence of sensitive features within the proposed license area, including Significant Wildlife Habitat, Habitat for Endangered Species, Wetlands and Intermittent Watercourses.

Species at Risk Assessment (All of Ontario)
A species at risk assessment was completed for 64 aggregate properties in Ontario to determine potential for habitat of endangered or threatened species listed in the Endangered Species Act (2007). An exemption agreement with the MNR was completed each site identified as having potential habitat. These agreements included conducting site surveys for specific species, implementing site mitigation measures, timing of certain operations and training of site staff.

Natural Environment Report Level I & II (Township of Galway-Harvey- Cavendish)
A Natural Environment Report was completed for a proposed limestone quarry on 246 acres. Consultation with the Ministry of Natural Resources, field investigations and analysis identified the potential for habitat of a threatened species and significant wildlife habitat. Mitigation measures were recommended to ensure no negative impacts which included unique progressive and final rehabilitation requirements.

Natural Environment Report Level I & II (Municipality of Grey Highlands)
A Natural Environment Report was completed for a proposed pit on 100 acres. Both a Natural Environment Report Level I & II was required under the Aggregate Resources Act (ARA) as natural heritage features were identified by field investigations and background research within 120 metres of

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Aggregates cont'd.

the proposed licensed area. Mitigation measures were recommended to ensure no negative impacts to those natural heritage features or their ecological functions.

Natural Environment Report Level I & II (Township of Uxbridge)
A Natural Environment Report was completed for a proposed pit above the water table. Significant Woodlands were identified adjacent to the site, and mitigation measures were recommended in consultation with relevant agencies to ensure no negative impacts and to satisfy policies of relevant provincial legislation.

Species at Risk Registration and Monitoring **(Township of Springwater)**
A species at risk was identified within an existing license pit where future operations would impact the species. A comprehensive mitigation plan was completed under an exemption in Ontario Regulation 242/08 of the *Endangered Species Act* to transplant this species and ensure its survival while allowing aggregate operations to continue.

Urban and Rural Development

Biological Monitoring Plan and Erosion/Sediment Control Inspections (City of Brantford)
Roots Environmental assisted with the completion of an Environmental Implementation Report to clear draft plan conditions for a large residential and commercial subdivision. This included the creation of a Biological Monitoring Plan to assess any impacts to adjacent natural features and the inspection of erosion and sediment controls (i.e. silt fencing) on site through construction.

Environmental Impact Study (EIS)- Rural Severances (Township of Oro- Medonte)
An EIS was prepared as part of a rezoning and official plan amendment to sever seven residential lots. Fieldwork identified the presence of Significant Wildlife Habitat (Species of Conservation Concern) within the property. Habitat was delineated and avoided as part of the conditions of the severance.

Rare Species Surveys- Southshore Woods (Town of Innisfil)
Rare species surveys were conducted as part of Site Plan Control for 3 residential lots in the Town of Innisfil. The purpose of the surveys was to locate any populations of these rare species and avoid any impacts through proper placement of buildings and associated services.

Scoped EIS and Wetland Delineation (Township of Tay)
Completion of a Scoped EIS as required for clearance of Draft Plan conditions for waterfront redevelopment in the Town of Port McNicoll. Further to this work, assistance was provided for the development of a Shoreline Buffer & Management Plan and completed wetland delineation of Provincially Significant Coastal Wetlands to the satisfaction of the Ministry of Natural Resources.

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Urban and Rural Development cont'd.

Natural Heritage Evaluation- (Town of Uxbridge and the Oak Ridges Moraine)
Required as part of rezoning application to permit four-season recreation use, a Natural Heritage Evaluation was completed per policies of the Official Plan and Oak Ridges Moraine Conservation Plan. The Evaluation was scoped to areas of new recreation uses.

Preliminary Species at Risk Assessment- Rural Development (District of Muskoka)
Due to the potential presence of the habitat of a threatened species, a Preliminary Species at Risk Assessment was completed for four rural severances. Potential habitat was identified, and setbacks recommended for its protection.

Environmental Evaluation- Shoreline Residential Severances (Township of Georgian Bay)
An evaluation was completed in support of an application to sever two shoreline residential lots. Field investigations and analysis identified appropriate setbacks and mitigation measures for the protection of fish habitat and water quality.

Tree Inventory and Butternut Assessment (Town of Innisfil)
A tree inventory was required for development of commercial site in the Town of Innisfil. The inventory provided a detailed account of tree species, size and health relative to areas proposed to be disturbed. During the surveys, endangered butternut trees were found and assessed using standardized protocols.

Natural Heritage Development Review- Big Chute (Crown Lands)
Field investigations and a review of background documentation was completed to determine the opportunities and constraints for construction of a cottage road through Crown Lands. Recommendations for placement of the road were made to avoid impacts to sensitive natural features.

Existing Conditions Report- Alcona North Secondary Plan (Town of Innisfil)
On behalf of landowners in the Alcona North Secondary Plan, an existing conditions (Natural Environment) was completed to identify areas suitable for development and those which should be protected relative to natural heritage features and functions.

Environmental Impact Study- Commercial Redevelopment (Township of Springwater)
An EIS was completed for a commercial redevelopment in the Township of Springwater. Fish habitat was identified on and adjacent to the proposed development. Mitigation measures to ensure no negative impacts included restoration of areas adjacent to the watercourse. The EIS was accepted by the conservation authority.

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