



BURNSIDE

**Environmental Impact Study
Revision 1
Centre Wellington Operations
Centre 965 Gartshore Street
Fergus ON**

**Township of Centre Wellington
1 Macdonald Square
Elora ON N0B 1S0**



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**R.J. Burnside & Associates Limited
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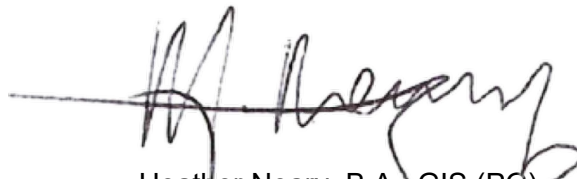
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1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by the Township of Centre Wellington (the Township) to prepare a scoped Environmental Impact Statement (EIS) for the proposed operations center located at 965 Gartshore Street, Fergus. This report is in support of the proposed Zoning By-Law Amendment (ZBA).

The Grand River Conservation Authority (GRCA) is requiring the preparation of the EIS due to regulated lands in the study area. Portions of the County's Natural Heritage System are found on the north area of the site and require characterization and demonstration that no impacts to the features and functions will result from the development.

The purpose of this investigation is to assess the off-site wetland and woodland within the study area, as well as determine impacts and mitigation as needed within the context of the proposed development.

This revision addresses comments received about the EIS, and the new concept plan has been incorporated into the figures. The revised concept does not result in any new impacts to the retained natural features.

2.0 Policy and Legislative Framework

The following sections identify the federal, provincial, Conservation Authority and County policies and legislation that apply to the proposed development.

2.1 Migratory Birds Convention Act, 1994

The Migratory Birds Convention Act, 1994 (MBCA) and the Migratory Bird Regulations (MBR) are federal legislative requirements that are binding on members of the public and all levels of government, including federal and provincial governments. The legislation protects certain species¹, controls the harvest of others, and prohibits commercial sale of all species.

One key responsibility under the MBCA is described in Section 6 of the associated MBR:

Subject to subsection 5(9), no person shall

Disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, or

Have in his possession a live migratory bird, or a carcass, skin, nest or egg of a migratory bird except under authority of a permit therefore.

The “incidental take” of migratory birds and the disturbance, destruction or taking of the nest of a migratory bird is prohibited. “Incidental take” is the killing or harming of migratory birds due to actions, such as economic development, which are not primarily focused on taking migratory birds. No permit can be issued for the incidental take of migratory birds or their nest or eggs because of economic activities. These prohibitions apply throughout the year. Environment Canada and the Canadian Wildlife Service have compiled nesting calendars that show the variation in nesting intensity, by habitat type and nesting zone, within broad geographical areas distributed across Canada. While this does not mean nesting birds will not nest outside of these periods, the calendars can be used to greatly reduce the risk of encountering a nest. Environment Canada advises avoidance as the best approach.

¹ Bird species not regulated under the Act include: Rock Dove, American Crow, Brown-headed Cowbird, Common Grackle, House Sparrow, Red-winged Blackbird, and European Starling. In addition, raptors are not regulated under the MBCA. However, they are protected under provincial legislation which restricts and regulates the taking or possession of eggs and nests. Furthermore, if the species identified is protected under Ontario’s Endangered Species Act, 2007 or the federal Species at Risk Act, additional restrictions may apply.

2.3 Provincial Policy Statement (2020)

The PPS (MMAH, 2020) provides general policies on land use patterns, resources, and public health and safety that guide development across Ontario. As stated in Section 2.1.1 of the PPS, “Natural features and areas shall be protected for the long term”. This statement is interpreted as the main goal of development should be to prevent additional degradation, reduction or removal of onsite and adjacent natural heritage features and functions.

Additionally, Section 2.1.2 states that:

“The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features”.

This statement supports the previous section where natural feature preservation should be partnered with management, restoration and enhancement of the feature(s) and the connections of the feature(s) within a greater natural heritage system.

Specifically related to this location is the requirement to identify natural heritage systems (NHS) in southern Ontario (Ecoregions 6E and 7E), Policy 2.1.3. This report will address Section 2.1 (Natural Heritage).

Specifically, Section 2.1.4 identifies that development and site alteration shall not be permitted within:

- a) *Significant wetlands in Ecoregions 5E, 6E, and 7E; and*
- b) *Significant coastal wetlands.*

Also, Section 2.1.5 identifies that development and site alteration shall not be permitted within:

- a) *Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E, and 7E;*
- b) *Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary’s River);*
- c) *Significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Mary’s River);*
- d) *Significant wildlife habitat;*

- e) *Significant areas of natural and scientific interest; and*
- f) *Coastal wetlands in Ecoregions 5E, 6E, and 7E that are not subject to policy 2.1.4(b) unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

Sections 2.1.6 and 2.1.7 identify two additional natural features where development and site alteration are not permitted except in accordance with provincial and federal requirements.

- a) *Fish habitat except in accordance with provincial and federal requirements; and*
- b) *Habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.*

According to Section 2.1.8, development and site alteration are not permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6, unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

2.4 Endangered Species Act, 2007

The Endangered Species Act, 2007 (ESA), provides protection for species at risk (SAR) and their habitat. The ESA was administered by the Ministry of Natural Resources and Forestry (MNR), but is now the jurisdiction of Ministry of Environment, Conservation and Parks (MECP). The Act presents policies for the protection of extirpated, endangered, and threatened species, as well as species of special concern. These four categories of species form the Species at Risk in Ontario (SARO) List, which are classified by the Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is also responsible for maintaining criteria for assessing and classifying SAR.

The ESA helps protect species (Section 9) and their habitat (Section 10). Section 9(1)(a) of the ESA states,

No person shall kill, harm, harass, capture or take a living member of a species that is listed on the SARO list as Extirpated, Endangered and Threatened.

Section 10(1)(a) of the ESA states:

No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species.

2.5 Grand River Conservation Authority (O. Reg. 150/06)

The GRCA administers Ontario Regulation 150/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses. Through this regulation, GRCA has the ability to:

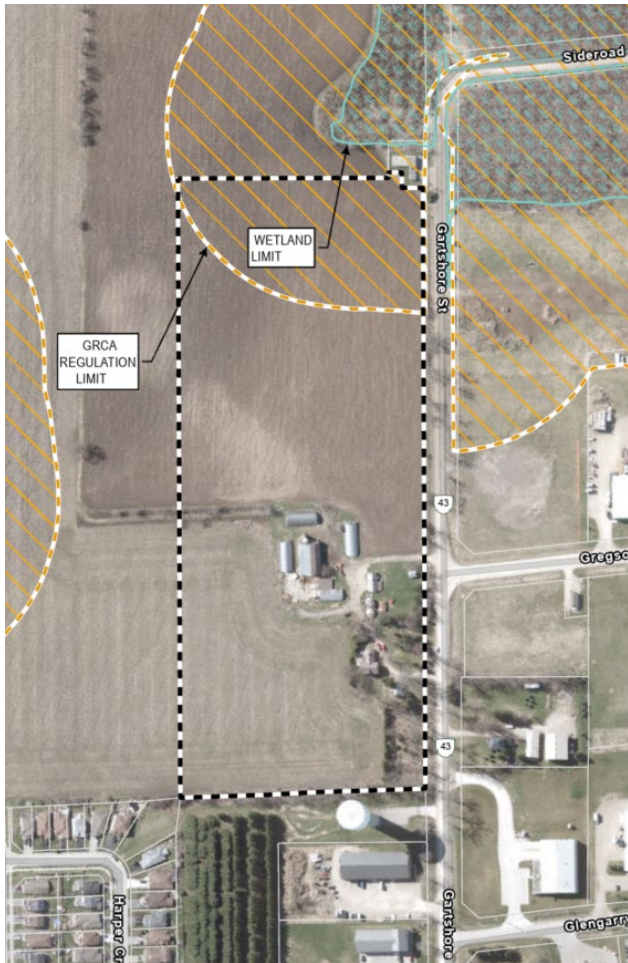
- Prohibit, regulate or require the permission of the authority for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, or for changing or interfering in any way with a wetland.
- Prohibit, regulate or require the permission of the authority for development, if in the opinion of the authority, the control of flooding, erosion, dynamic beaches or pollution or the conservation of land may be affected by the development.

Based on online GRCA Regulation mapping, a portion of 965 Gartshore Street, Fergus is located within GRCA's Regulation limits and will therefore require a consent and permit from the GRCA once the development envelope is determined.

The EIS provides recommendations to ensure that natural heritage features and functions are not negatively impacted and, where applicable, recommends mitigation measures.

Although no wetland or watercourse features are present in association with the Subject Property, a wetland feature associated with the Irvine Creek Wetland Complex Provincially Significant Wetland (PSW) is present on adjacent lands. Existing GRCA wetland limit mapping was used for the offsite lands.

A 30 m setback from the floodplain limit was established from GRCA records.

Photo 1: Extent of Wetlands and GRCA Regulatory Limits**2.6 County of Wellington Official Plan**

The project limits fall within the Prime Agricultural Lands as shown on Schedule A1 of the County of Wellington Official Plan.

The lands immediately north of the project limits are classified as Core Greenlands. Areas identified under the “Core” Greenlands designation contain:

- Provincially significant wetlands;
- All other wetlands;
- Habitat of endangered or threatened species and fish habitat; and
- Hazardous lands.

The Greenlands designation includes other significant natural heritage features such as habitat, areas of natural and scientific interest, streams and valleylands, woodlands, environmentally sensitive areas, ponds, lakes and reservoirs and natural links.

This EIS is also intended to demonstrate that there will be no negative impacts to the Greenlands features and their functions.

2.7 County of Wellington Forest Conservation By-Law 5115-09

The County Wellington Forest Conservation By-Law 5115-09 regulates the removal of trees within woodlots greater than 1.0 ha as well as an unforested corridors within the area that are equal to or less than 30 m that meet the following density criteria:

- 1,000 trees of any size, per hectare (405 trees, of any size, per acre);
- 750 trees, measuring over 5 cm in diameter, per hectare (304 trees, measuring over 2 inches in diameter, per acre);
- 500 trees, measuring over 12 cm in diameter, per hectare (202 trees, measuring over 4.7 inches in diameter, per acre); or
- 250 trees, measuring over 20 cm in diameter, per hectare (101 trees, measuring over 7.9 inches in diameter, per acre).

A tree preservation plan has been completed by Burnside as part of a different scope of this project.

3.0 Background Information Review

The following documents were reviewed to assess the environmental constraints to, and opportunities for the proposed development:

- Aerial photography (multiple years from GRCA database);
- The Ministry of Natural Resources and Forestry (MNR) Natural Heritage Information Centre (NHIC) database to identify records of rare wildlife species on, and in the vicinity of the Site;
- GRCA's Regulation 150/06 Mapping;
- NRVIS data provided on the GRCA's Grand River Watershed Viewer online mapping site to identify provincially significant wetlands, valleylands, ANSIs and watercourses;
- The County of Wellington Official Plan;
- MNR Natural Heritage Areas online mapping interface;
- The Ontario Breeding Bird Atlas (OBBA), 2001-2005 for records of birds breeding in the area; and,
- The Ontario Reptile and Amphibian Atlas (ORAA), for records of reptiles and amphibians in the area.

The results of the background data review are presented in Table 3.1. Based on the review, the following features are, or may be, present within 120 m of the Site:

- Irvine Creek Wetland Complex;
- Colonial Waterbird Nesting Area;
- Significant Wildlife Habitat (Waterfowl Stopover & Staging Areas (Aquatic), Bat Maternity Colonies, Turtle Wintering Areas, Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs), Deer Yarding Areas, Deer Winter Congregation Areas, Amphibian Breeding Habitat (Woodland), Terrestrial Crayfish, Special Concern and Rare Wildlife Species); and,
- Habitat of endangered and threatened species.

Records of avifauna, mammals, reptiles and amphibians in the broad region are outlined Table 3.1 below

Table 3.1: Potential Natural Heritage Features in Vicinity of the Site

Feature	Existing Records	Data Source
Features of Provincial Significance		
Significant Wetlands Ecoregion 6E	Irvine Creek Wetland Complex - Provincially Significant Wetland (PSW).	NHIC, GRCA GRIN mapping, MNRF data package
Significant Woodlands	No records identified	MNRF Woodlands Mapping (as presented on GRCA GRIN mapping),
Significant Valleylands	No records identified	GRCA GRIN mapping
Significant Wildlife Habitat Ecoregion 7E	<p>Seasonal Concentrations of Animals:</p> <ul style="list-style-type: none"> • (Waterfowl Stopover & Staging Areas (Aquatic)) • Bat Maternity Colonies • Turtle Wintering Areas • Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) • Deer Yarding Areas • Deer Winter Congregation Areas <p>Rare Vegetation Communities:</p> <ul style="list-style-type: none"> • No records identified. <p>Specialized Habitat for Wildlife:</p> <ul style="list-style-type: none"> • Amphibian Breeding Habitat (Woodland) <p>Habitats for Species of Conservation Concern:</p> <ul style="list-style-type: none"> • Terrestrial Crayfish • Special Concern and Rare Wildlife <p>Animal Movement Corridors:</p> <ul style="list-style-type: none"> • No records identified 	NHIC, OBBA
Significant Areas of Natural and Scientific Interest	No records identified.	NHIC, GRCA GRIN mapping
Habitat of Endangered and Threatened Species	Records identified for Threatened and Endangered species of reptiles and amphibians, birds, mammals and vegetation.	NHIC, OBBA, ORAA

3.1 Natural Heritage Information Centre database

The Natural Heritage Information Centre (NHIC) database, maintained by the MNRF was accessed to search for records of provincially significant plants, vegetation communities and all forms of wildlife within the subject lands and the surrounding areas. The database provides data for 1 km x 1 km blocks. The subject lands and study area vicinity (i.e., within 120 m of the site) falls within one km square (square no. 17NJ4941). The search revealed one record for Eastern Meadowlark (*Sturnella magna*) and Bobolink (*Dolichonyx oryzivorus*), the search also identified Irvine Creek Wetland Complex PSW.

3.2 Ontario Breeding Birds Atlas

A review of the Ontario Breeding Bird Atlas (OBBA) square 17NJ44 identified records of 178 bird species in the vicinity of the site. The relative rarity² of each species is identified in Table 3.2.

Table 3.2: Provincial S-Ranks of Bird Species Recorded in the Vicinity³ of the Site

Rarity Ranking (SRank)*	Number of Species
S5 (S5, S5B, S5N)	94
S4 (S4, S4B, S4?B, S4S5B)	58
S3 (S3, S3B)	11
S2 (S2B)	7
S1(S1, S1B, S1?, S1M)	2
SNA	6

*S1- Critically Imperiled

S2- Imperiled

S3- Vulnerable

S4- Apparently Secure

S5- Secure

SNA- Not applicable, not suitable for conservation activities

Most of the bird species in the area are common, secure and not at risk. Species ranked S3 and lower are considered to be vulnerable. Based on a review of OBBA records, 20 species ranked S3 or lower were identified as being present within the vicinity of the study area. Twelve species are listed under the ESA as Special Concern (Barn Swallow – *Hirundo rustica*; Short-eared Owl – *Asio flammeus*; Eastern Wood-pewee – *Contopus virens*; Evening Grosbeak – *Coccothraustes vespertinus*; Grasshopper Sparrow – *Ammodramus savannarum*; Common Nighthawk – *Chordeiles minor*; Golden-winged Warbler – *Vermivora chrysoptera*; Bald Eagle *Haliaeetus leucocephalus*; Peregrine

² Rarity based on NatureServe rankings for provincial/state rarity (SRank).

³ Based on OBBA 10x10km square covering the site.

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Falcon - *Falco peregrinus*; Olive-sided Flycatcher - *Contopus cooperi*; Wood Thrush - *Hylocichla mustelina*; Canada Warbler - *Cardellina canadensis*).

Eight species are listed as Threatened (Bobolink – *Dolichonyx oryzivorus*; Bank Swallow – *Riparia riparia*; Least Bittern – *Ixobrychus exilis*; Eastern Whip-poor-will - *Antrostomus vociferus*; Louisiana Waterthrush - *Parkesia motacilla*; Chimney Swift - *Chaetura pelagica*; Eastern Meadowlark – *Sturnella magna*; Cerulean Warbler, *Setophaga cerulea*).

Two species are listed under the ESA as endangered (Acadian Flycatcher – *Empidonax virescens*; Red-headed Woodpecker – *Melanerpes*). Threatened and Endangered species, as well as habitats that support them, are protected in Ontario.

Of the 20 species listed, suitable habitat is present within the Subject Lands for one Threatened species and one species of Special Concern, specifically:

- Barn Swallow – Special Concern; and,
- Red-headed Woodpecker – Endangered;

Suitable habitat was also present within the study area but not the subject lands for two species of special concern, specifically:

- Canada Warbler – Special Concern; and,
- Golden-winged Warbler – Special Concern;

Further information regarding the habitat requirements for each species is discussed in greater detail in Section 7.5.2.

3.3 Ontario Reptile and Amphibian Atlas

Records of reptiles and amphibians were obtained from the NHIC and ORAA databases for SAR listed under the ESA. No records for species identified as Endangered, Threatened, or Special Concern were identified as for square 17NJ44. One federally listed species of Special Concern, Midland Painted Turtle (*Chrysemys picta marginata*) was identified as being potentially present.

Habitat for this species, if present within the study area, would be limited to the PSW located approximately 25 m from the limit of development

3.4 Grand River Conservation Authority Mapping

GRCA online mapping was used to identify regulated areas including floodplains, watercourses, and wetland systems within the study area. Approximately 25% of the subject site falls within the GRCA regulatory limits. Wetlands are identified near the north and northeast of the site.

4.0 Field Methodologies

Field investigations were conducted July 19, 2022 and January 6, 2023. The purpose of field investigations was to verify whether the features identified in the background data review are present and, if so, to confirm their boundaries and characterize them.

Burnside ecology staff conducted a site investigation to identify and map vegetation communities. All communities onsite and immediately adjacent to the property lands were reviewed to characterize their composition based on Lee et. al, 1998 and the Vegetation Type List of the Southern Ontario Ecological Land Classification (Lee, May 2008). The limits of these communities are shown on Figure 2.

The limit of the offsite wetland as identified in GRCA boundary was reviewed in comparison to the site conditions from the Study Area and the road ROW. The limit appeared accurate, and the limit has been incorporated into the current investigation's mapping.

4.1 Incidental Wildlife Observation

Observations and calls by wildlife of birds and mammals were documented when encountered.

No targeted wildlife investigations were completed (i.e., breeding bird surveys, marsh monitor protocol) due to limited habitat provided by the annual row croplands.

5.0 Existing Conditions

5.1 Site Description

The study area is located on a 7.97 ha parcel of farmland located within the Township of Centre Wellington. The site sits northeast of the boundary for the Town of Fergus on Gartshore Street. The site is bounded by Gartshore Street to the northeast, agricultural lands to the west and southwest, Harper Crescent Park to the south, a municipal well located directly northeast, and a municipal water tower located south. There is an existing farmhouse and seven barns on the property. Located within the southeast corner of the site is a plantation of a variety of deciduous and coniferous trees that are proposed to be preserved and made into an arboretum.

The surrounding land use is primarily residential and agriculture, with riparian corridors and isolated wooded areas.

The Burnside investigation identified four ecosites within and immediately adjacent to the proposed development area.

5.2 Physiography

5.2.1 Soils and Topography

The Ontario Ministry of Agriculture, Food and Rural Affairs AgMaps identifies the site as being comprised of Harriston Loam throughout the majority of the property. Harriston Loam are described as well drained, glacial tills derived from the underlying limestone strata (Hoffman et al. 1963).

A geotechnical report was prepared by JLP Services Inc. on December 19, 2022. Based on the findings detailed in the report, the topsoils throughout all the bores throughout the property consist of sandy silt with trace gravel and scattered organic inclusions. The depth of topsoils varied throughout the Subject Property, ranging from 200 – 250 mm thick. The topsoils are underlain by sandy silt till or silty sands.

The site drainage patterns are discussed in greater detail below and the FSR.

5.2.2 Site Surface Drainage Pattern

The existing site has an overall high point near the southeast corner of the property. The result is that the entire site drains from southeast to northwest via overland flow to the adjacent agricultural property. External drainage areas are negligible as the road runoff is conveyed by the municipal ROW.

5.3 Ecological Land Classification

Assignment of ELC codes on vegetation communities that are heavily influenced by disturbance and management can be difficult and may result in subjectivity associated with the classification. A description of each community is provided below.

Annual Row Crops (OAGM1)

Row crops make up the majority of the property and comprise the main field that is approximately 6.7 ha. Soy was the crop during the 2022 growing year.

Rural Property (CVR_4) and Agricultural Buildings (IAGM1)

The residential and agricultural operations portion of the property is found at the southeast corner of the site. It is occupied by the residence, barn and outbuildings. Manicured turf is found throughout the settled area with open grown trees including Thornless honey-locust (*Gledistia triacanthos 'inermis'*), Eastern cottonwood (*Populus deltoides*), Red pine (*Pinus resinosa*) and White spruce (*Picea glauca*).

The tree collection is also included with this community. It is comprised of a wide variety of specimen trees with gardens in the groundlayer. Refer to the arborist report (also by Burnside) for the species found within this area.

Fencerow (TAGM5)

There are two hedgerows that are identified in this investigation: one at the south limit and the other located west of the barn.

The hedgerow on the south limit is located offsite to the current Study Area but is on Township lands associated with the water tower. It is dominated by a single row of mature Sugar maple (*Acer saccharum*) trees with DBH range of 50 to 82 cm are found at the east limit of the feature. Immature (10-25 cm) trees are found at the west limit where Norway maple (*Acer platanooides*) and Sugar maple are codominant. European buckthorn (*Rhamnus cathartica*) and Choke cherry (*Prunus virginiana*) are found growing densely in the groundlayer and understory.

The hedgerow growing west of the barn is a sparse double row of trees that are found on the limits of a tractor path. Black cherry (*Prunus serotina*) is the dominant species with lesser associates of European mountain-ash (*Sorbus aucuparia*) and Sugar maple. The trees are mid-aged, with DBH's ranging mainly from 20 to 36 cm. Cool season grasses are found throughout the feature with Smooth Brome (*Bromus inermis*) as the dominant species.

Willow Mineral Deciduous Thicket Swamp (SWTM3-1)

This offsite wetland is located north of the property on private lands. The wetland limit from GRCA's mapping appeared consistent with what the ecologist observed in the field so that limit is being used to delineate this feature. The wetland is dominated by shrubs: mainly Coneygall (Missouri) willow (*Salix eriocephala*) with lesser associates of Red osier dogwood (*Cornus sericea*). Reed canary grass (*Phalaris arundinacea*) dominates the groundlayer throughout the feature. The feature has dense masses of shrubs with openings where the reed canary grass is exclusively found.

5.4 Incidental Wildlife

The following species were documented visually or by call during site investigations:

- Dark-eyed junco (*Junco hyemalis*);
- American Crow (*Corvus brachyrhynchos*); and,
- Grey Squirrel (*Sciurus carolinensis*).

It is anticipated that wildlife tolerant of agriculture operations including Raccoon (*Procyon lotor*), Eastern Coyote (*Canis latrans*), American Skunk (*Mephitis mephitis*), and Virginia Opossum (*Didelphis virginiana*) use the site for foraging and habitat. Bats including SAR and non-SAR species may also use the swamp features and structures for maternal roosting.

6.0 Provincially Significant Natural Heritage Features

6.1 Provincially Significant Wetlands

The Irvine Creek Wetland Complex is located immediately beyond the Study Area.

6.2 Significant Woodlands

No significant woodlands are present within the Study Area. Areas north and east of the site, associated with the Irvine Creek Wetland Complex, may be considered Significant Woodlands.

6.3 Significant Valleylands

There are no Significant Valleylands within 120 m of the site.

6.4 Significant Areas of Natural and Scientific Interest

There are no Areas of Natural and Scientific Interest within 120 m of the site.

6.5 Significant Wildlife Habitat

According to the Natural Heritage Reference Manual (MNR, 2010) and Significant Wildlife Habitat Technical Guide (MNR, 2000), there are four types of Significant Wildlife Habitat (“SWH”), as follows:

- Habitats of Seasonal Concentrations of Animals;
- Rare Vegetation Communities / Specialized Habitats;
- Habitats of Species of Conservation Concern; and,
- Animal Movement Corridors.

Significant Wildlife Habitat (SWH) is designated at the local planning level (i.e., municipality). Local designations occur because conditions and features vary widely between municipalities and what is important and unique in one area may be common and secure in another. One municipality, the County of Brant, is an example that has broadly defined SWH as areas “*consisting of one or more of the following*”:

- *“habitat areas that provide for seasonal concentrations of animals;*
- *wildlife movement corridors;*
- *rare vegetation communities or specialized habitats for wildlife; and/or*
- *habitats for species of conservation concern”.*

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SWH has not been identified on schedule mapping in the Centre Wellington or Wellington County OPs. The assessment completed as a part of the study will use broad habitat descriptions from the Significant Wildlife Habitat Technical Guide (SWHTG) and the SWHTG Ecoregion 6E Criterion Schedule (MNR, 2015).

Based on Burnside's review of background information and field data, there are no candidate or confirmed SWH features associated within the Subject Lands. This is due to the fact that the majority of the site consists of active agricultural lands and lack of natural cover.

Within habitats adjacent to the subject lands, four other Candidate SWH features have been identified. Again, no studies to confirm the presence of SWH Features were carried out on these lands. A summary of the SWH features within the Technical Guide as they relate to this investigation are provided in Appendix A. The Candidate SWH features identified in the areas adjacent to the Study Area include:

- Waterfowl Stopover & Staging Areas (Aquatic) – Moderate Potential;
- Bat Maternity Colonies – Moderate Potential;
- Turtle Wintering Areas – Low Potential;
- Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) – Moderate Potential;
- Deer Yarding Areas – Confirmed present;
- Deer Winter Congregation Areas – Moderate Potential;
- Amphibian Breeding Habitat (Woodland) – Moderate Potential;
- Terrestrial Crayfish – Moderate Potential; and,
- Special Concern and Rare Wildlife Species.

All of these habitats are associated with the Irvine Creek Wetland Complex north and east of the Subject Property.

6.5.1 Waterfowl Stopover & Staging Areas (Aquatic) – Moderate Potential

The swamp communities and watercourse associated with Irvine Creek Wetland Complex could function as a Waterfowl Stopover & Staging Area. Targeted studies to confirm the presence/absence of aggregations of waterfowl or benthic invertebrate studies were not included within the scope of work for this EIS.

These features are not located within the proposed development limits and will not be directly impacted by construction activities. Potential indirect impacts and mitigation measures are discussed in Section 9.

6.5.2 Bat Maternity Colonies

The presence / absence of this feature was not able to be confirmed as passive acoustic monitoring was not included in the scope of work. Candidate Bat Maternity Habitat (BMH) may occur within the SWTM3-1 community or other parts of the Irvine Creek Wetland Complex. These features are not located within the proposed development limits and will not be directly impacted by construction activities. Potential indirect impacts and mitigation measures are discussed in Section 9.

6.5.3 Turtle Overwintering Areas

The swamp communities and watercourse associated with the Irvine Creek Wetland Complex could provide suitable overwintering habitat for Snapping Turtle and Midland Painted Turtle. Targeted studies to confirm the presence/absence of overwintering turtles, dissolved oxygen surveys, or turtle basking surveys were not completed as a part of this EIS. No incidental turtle observations of turtles were made during field observations.

These features are not located within the proposed development limits and will not be directly impacted by construction activities. Potential indirect impacts and mitigation measures are discussed in Section 9.

6.5.4 Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)

The swamp components of the Irvine Creek Wetland Complex that contain live or dead trees or shrubs for nesting could provide suitable overwintering habitat.

These features are not located within the proposed development limits and will not be directly impacted by construction activities. Potential indirect impacts and mitigation measures are discussed in Section 9.

6.5.5 Deer Yarding & Winter Congregation Areas

The Irvine Creek Wetland Complex has been identified by the MNR as a White-tailed Deer Wintering Area (Stratum 2).

These features are not located within the proposed development limits and will not be directly impacted by construction activities. Potential indirect impacts and mitigation measures are discussed in Section 9.

6.5.6 Amphibian Breeding Habitat (Woodland)

Deciduous swamp and thicket swamps are present adjacent to the subject lands and could constitute amphibian breeding habitat. Graminoids, shrubs, and fallen organic debris were also present, providing calling sites and substrates for egg laying. Amphibian call surveys were not required within the scope of the EIS.

These features are not located within the proposed development limits and will not be directly impacted by construction activities. Potential indirect impacts and mitigation measures are discussed in Section 9.

6.5.7 Terrestrial Crayfish

Marshes and swamp and thicket swamps are present adjacent to the subject lands and could constitute terrestrial crayfish habitat. No chimneys were seen during site investigations.

These features are not located within the proposed development limits and will not be directly impacted by construction activities. Potential indirect impacts and mitigation measures are discussed in Section 9.

6.5.8 Habitat for Species of Conservation Concern – Special Concern and Rare Wildlife Species

Canada Warbler and Golden-winged Warbler

Suitable habitat for Canada Warbler and Golden-winged Warbler is present in association with the thicket swamp community. Canada Warbler prefers wet coniferous, deciduous and mixed forest and swamp types, with a dense shrub layer and is also known to occur within thicket swamps. This species nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest. Similarly, Golden-winged Warbler generally prefer areas of early successional vegetation, found primarily on field edges, hydro or utility rights-of-way, or recently logged areas including thicket swamps (Cadman et al. 2007).

Overall, there is moderate potential for Canada Warbler and Golden-winged Warbler to be supported within the off-site thicket swamp. This community contains a dense shrub layer.

Direct impacts to the swamp communities will be avoided as no off-site works are proposed.

6.6 Significant Habitat of Endangered and Threatened Species & Species of Special Concern

Burnside's background review revealed the potential for SAR in the site and vicinity. Under the ESA, species listed as Threatened and Endangered are afforded species and habitat protection. Although species of Special Concern are not afforded individual protection or habitat protection, management plans and in some cases recovery strategies are completed. As part of the SAR screening table, potential for Special Concern species and their habitat was evaluated within the site.

All findings can be found in the SCC and SAR screening table in Appendix B of this report. There is potential for SAR to be supported within the wetland and forest communities. No SAR are confirmed to inhabit the site based on the findings of the surveys completed. The table below summarizes the Endangered and Threatened and found to have candidate habitat within the site.

Table 6.1: Historical Species at Risk and Species of Special Concern with Habitat Present on the Site

Species	Scientific Name	Status	Habitat
Candidate			
Barn Swallow	<i>Hirundo rustica</i>	SC	CVR_4
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	END	SWTM3-1
Eastern Small-footed Myotis	<i>Myotis leibii</i>	END	CVR_4, SWTM3-1
Little Brown Myotis	<i>Myotis lucifugus</i>	END	CVR_4, SWTM3-1
Northern Myotis	<i>Myotis septentrionalis</i>	END	CVR_4, SWTM3-1
Tri-colored Bat	<i>Perimyotis subflavus</i>	END	CVR_4, SWTM3-1

Habitat for the remaining SAR identified in Appendix B are not present within the Study Area. Note that federally listed species that are not listed as SAR under the ESA are not included within Table 6.1, but are included in Appendix B.

Barn Swallow

Based on the OBBA records, Barn Swallows have been observed nesting within the site vicinity. Barn Swallows are well documented to nest on the outside of buildings adjacent to open areas including wetlands, river shorelines, and meadows. These open areas are used as foraging habitat (Heagy et al. 2014).

The house and barns are adjacent to suitable foraging habitat, and it is acknowledged there is potential for Barn swallow to be nesting within the subject lands. No Barn Swallow nests were observed on or within the barn or buildings at the time of site investigations.

SAR Bats

In Ontario, all four of SAR Myotis species have been documented to utilize anthropogenic structures as maternal roosting and day roosting habitat. Little Brown Myotis and Northern Myotis typically roost in mature cavity trees with cracks, cavities, fissures, or loose bark which it uses to shelter itself and its young, forming maternity colonies in clusters of trees in proximity. Little Brown Myotis in particular are well documented to utilize anthropogenic structures such as houses, sheds, buildings, and bridges. In comparison, only one confirmed Northern Myotis roost has ever been documented in Ontario (Humphrey & Fotherby, 2019). Eastern Small-footed Myotis typically roost in rocky outcroppings have been documented to utilize anthropogenic structures including barns, sheds, guardrails, and culverts.

The barn may provide suitable roosting habitat for SAR bats. Numerous entry points are visible throughout the barn; however, no evidence of use by bats (i.e., grease and guano stains near potential entry points) was observed by Burnside ecologists during the field investigation. Suitable foraging habitat is abundant within the surrounding lands. Burnside biologists did not observe any evidence of SAR bat occupancy such as grease or guano stains near entry points or within the barn, house or outbuildings.

Suitable maternity roosting habitat is available within the surrounding lands. SAR bats are well documented to switch between different roost trees throughout the active season and between years. It is likely that if potential roosting habitat is removed, bats will seek out available roosts in the forested lands surrounding the Subject Lands in the future. Mitigation measures to avoid potential impacts to SAR bats and their habitat are discussed in greater detail in Section 9.

7.0 Proposed Development

The project proposes an Operations Centre for the Township of Centre Wellington. The project is proposed to occur in two phases. The operations building will include a phase one gross floor area (GFA) of 3,560 m² (38,320 ft²). It also contains a 250 m² (2,702 ft²) vehicle storage pole barn and a single greenhouse of 124 m². Phase 2 includes 1,226 m² (13,197 ft²) of additional GFA in the operations building as well as a 1,951 m² (21,000 ft²) salt and storage shed including interior loading. Phase 2 will also include an additional 250 m² (2,691 ft²) of GFA to the operations building. A second greenhouse directly adjacent to the primary greenhouse will be constructed in Phase 2. The development will cover most of the site and include an operations building, greenhouses, vehicle storage, pole barn, salt and sand shed, bunkers, bins, and ample outdoor parking. There is no intention to accommodate snow storage or snow disposal, all snow storage is strictly related to snow kept on site. There are three proposed entrances to the site, which are all located along Gartshore Street. The north portion of the site is within the GRCA regulation limit.

The house and associated tree collection will remain, but the barn and outbuildings will be removed to accommodate the new construction. The removal of trees is required to accommodate the south and central accesses, grading around the periphery and redevelopment of the internal parts of the site. Trees will also be removed with the Gartshore Street ROW to accommodate onsite grading, underground servicing and the central access.

Stormwater that currently is directed from the southeast towards the northwest will be collected and directed toward a proposed SWM facility using surface drainage and storm sewers. The outlet for the SWM facility will be directed toward the Gartshore Street ROW.

7.1 Natural Feature Protection and Enhancement

A 30 m buffer has been applied to the Irvine Creek PSW, as shown on Figures 2 and 3. Due to the proposed development, there will be some grading that encroaches this buffer. A total area of 228 m² will be impacted and enhancement in this area is recommended. It is understood that the property that contains the wetland is proposed for redevelopment so onsite enhancement should be coordinated with offsite enhancement plans.

The tree collection, most of the south hedgerow and a portion of the open grown trees around the rural residential yard will be retained and protected by tree protection fence (as illustrated in the arborist report).

8.0 Potential Ecological Impacts and Mitigation Measures

The proposed development has the potential to impact the natural heritage features summarized in Sections 5.0 and 6.0 of this report.

Potential impacts to these features can be categorized as:

- Direct (within the footprint of the development);
- Indirect (adjacent to the development but affected by spin-off effects); or
- Induced (a consequence of changes in human behaviours in response to the new development).

The most significant direct impact may be interpreted as the removal of vegetation associated with the rural property and the removal of the existing barn and outbuildings.

Effects on natural features that may occur that are further discussed:

- Loss or disturbance to migratory birds or their nests, wildlife habitat including potential Barn Swallow and SAR bat habitat, because of land clearing and development activities;
- Construction impacts, including erosion / sedimentation and unintentional encroachment into the retained natural features;
- Disruption of flow contributions and quality to wetland;
- Effects on wildlife because of lighting; and,
- Effects on wildlife from noise.

8.1 Wetlands

No direct effects to the PSW are present outside of the development envelope. Potential indirect impacts to wildlife are assessed in further detail in Table 9.1 below.

8.2 Significant Wildlife Habitat

All confirmed and candidate significant wildlife habitat features are found in association with the adjacent PSW complex, outside of the proposed development envelope. All potential indirect effects can be readily mitigated using industry standard construction practices. Potential indirect impacts to wildlife are assessed in further detail in Table 9.1 below.

8.3 Significant Habitat of Endangered and Threatened Species & Species of Special Concern

Impacts to potential candidate Barn Swallow and SAR bat habitat are anticipated with the proposed development. There is currently no evidence to indicate use of anthropogenic structures on-site by any SAR wildlife species but provided on-site

structures remain in-tact, there is potential for the barn to be used by SAR bats or Barn Swallows. Mitigation measures are discussed in greater detail in Table 9.1 below.

8.4 Summary of Potential Impacts to Natural Heritage Features & Proposed Mitigation Measures and Monitoring Activities

Potential impacts proposed mitigation and monitoring activities are presented and summarized below in Table 8.1.

Table 8.1: Summary of Potential Negative Impacts and Recommended Mitigation

Activity	Potential Impact	Duration (D), Geographic Extent (GE) and Magnitude (M) of the Impact	Proposed Mitigation
Land Clearing within the Development Envelope	Loss of or disturbance to migratory birds or their nests	D: Short-term, occurring only once. GE: Limited to open-grown trees within maintained grassy area M: Low, bird habitat in the development envelope is minimal; disturbance would not affect birds at the population level; however, disturbance of bird nests is in contravention of the MBCA.	Land clearing and barn / building removal should be completed outside of the breeding bird season (Nesting Zone C1 core breeding window, or when 41-100% are predicted to be nesting for all habitat types, is late March to August 31). If this is not possible, a bird specialist should survey the site prior to clearing to confirm that no active nests of migratory birds are present. Any active nests should be fenced and left undisturbed until young have fledged, as determined by a qualified biologist. All tree pruning and removals should be carried out by a qualified tree service under the direction of a certified arborist. Additional plantings will be completed to offset the loss of existing trees within the development envelope. Proposed plantings will consist of native tree and shrub species that will offer both habitat and a food source for birds and other wildlife species.
	Loss of wildlife habitat	D: Short-term, occurring only once. GE: Limited to the development envelope. M: Low for urban tolerant wildlife. Wildlife habitat within the Subject Lands is limited. Removal of existing features will have a negligible effect on commonly occurring wildlife species.	Any buildings that will be removed or altered during site developments should be inspected for nests prior to alteration. If any potential nests are found, the nest should be inspected by an avian biologist to confirm the species identity. All tree removal to occur through fall, winter and early spring months (i.e., September 1 to March 31) to avoid impacts to SAR bats. None of the trees slated for removal on-site have been identified as potential bat maternity habitat. Additional plantings will be completed to offset the loss of existing trees within the development envelope. Proposed plantings will consist of native tree and shrub species that will offer both habitat and a food source for birds and other wildlife species.
	Loss of candidate Species at Risk bat habitat associated with anthropogenic structures	D: Short-term, occurring only once. GE: Limited to the development envelope. M: Low, no evidence of bat roosting at this time. Low for Barn Swallow, no evidence of nesting. No evidence of use by bats was observed during Burnside's 2022 site visit.	Barn and outbuilding demolitions should occur outside of the bat active window (April 1 – September 30 of any given year). Further consultation with the MECP is recommended to ensure compliance with the ESA. Should the barn and outbuilding remain unused into the summer months, exclusion measures to prevent use by wildlife should be considered. Measures should be in place prior to the Barn Swallow active window (early May – July) and bat active window. The MNRF's <i>Best Management Practices for Excluding Barn Swallows and Chimney Swifts from Buildings and Structures</i> (2017) should be consulted regarding best management practices to prevent Barn Swallow nesting during the breeding bird window.

Activity	Potential Impact	Duration (D), Geographic Extent (GE) and Magnitude (M) of the Impact	Proposed Mitigation
	Impacts to wetlands	D: Short-term, occurring during grading for road construction and long-term, due to adjacent residential occupancy. GE: Impacts could extend beyond the development envelope. M: Low due to existing intensive use by row crop agriculture.	A mainly 30 m buffer will be applied to the offsite wetland feature to reduce impacts (only minor grading encroachments are required).
Clearing and Construction Activities	Construction impacts, including erosion / sedimentation and unintentional encroachment into the retained natural features.	D: Short-term during construction phase only. GE: Impacts could extend beyond the development envelope. M: Moderate. Significant fill is being imported to create the subdivision.	Erosion and sediment control fencing should be placed along the limit of disturbance to prevent siltation. Fencing should be continuous across the entire length of the work zone to avoid gaps where sediment could escape. Fencing should be maintained and regularly monitored for the duration of construction and until such time as lands are re-vegetated and stabilized and then it should be removed. All stockpiles, equipment and work areas should be maintained outside of the fenced area.
Alterations to Hydrological Regimes through Creation of Impervious Surfaces and Water Quality and Quantity from Stormwater	Disruption of flow contributions and quality to wetland	D: Long-term. GE: Impacts could extend beyond the development envelope. M: Moderate if wetland function is disrupted.	Existing stormwater flow is directed northwest across the site, not towards the offsite wetland. The proposed stormwater collected onsite and will be directed to an enhanced quality SWMP and will be discharged to the Gartshore Street ROW to eventually connect with the Irvine Creek Wetland Complex.
Lighting	Lighting from the operation center may cause potential disruption wildlife.	D: On-going in evening. GE: Could potentially extend into natural areas, affecting the patterns of nocturnal wildlife. M: Moderate since houses will back onto retained natural features.	Lighting within the compound should be directed downward and away from the natural features.
Noise	Impacts of construction noise on wildlife	D: Short term, during construction phase only. GE: Impacts confined to areas within direct vicinity of site. M: Low, noise anticipated to occur during daylight hours.	Environmental noise will be reduced through the standard operating practices and conformity with noise by-law requirements. The inspector will ensure that all operational plans and construction timing associated with noise reduction are being followed. Wildlife in the area is anticipated to be habituated to the noise of the farm operations and the road network and the proposed work is not anticipated to add significantly to it.

9.0 Compliance with Applicable Policies

Table 9.1 demonstrates how the proposed development predominantly complies with applicable federal, provincial, County and GRCA policies respecting natural heritage and natural hazard features. In cases where compliance is not feasible based on the interpretation of the policies, discussion on how concessions may be applied are provided to accommodate the proposed development.

Table 9.1: Compliance of Proposed Development with Policies

Feature	Applicable Policies	Policy Intent	How Addressed
Migratory Birds	Migratory Birds Convention Act, 1994	Migratory birds and their nests should not be killed or disturbed.	Land will be cleared and demolition of structures will be completed outside of the breeding season, which generally occurs early April to the end of August, in order to avoid disturbance to nests. If this is not possible, a pre-construction nest survey will be completed no greater than two days prior to the proposed site preparation and clearing activities by a qualified biologist. If nesting species are identified, an appropriate species-specific buffer will be applied until the nest is no longer active.
Provincially Significant Wetlands	PPS (2020)	Section 2.1.4 of the PPS identifies that development and site alteration shall not be permitted within Provincially Significant Wetlands in Ecoregions 5E, 6E, and 7E.	The PSW will not be directly impacted by the proposed development. It is anticipated that indirect impacts resulting from construction will not have any significant or long-term impacts on the adjacent PSW and will be effectively mitigated through the implementation of ESC measures and environmental monitoring.
Protection of Habitat of Endangered Species and Threatened Species & Species of Special Concern	Section 2.1.8 of the Provincial Policy Statement (2020), ESA (2007)	Development and site alteration not to be permitted in habitat of endangered species and threatened species and Species of Special Concern, except in accordance with provincial and federal requirements.	<p>No endangered, threatened or SC species were observed; however, there is potential for on-site structures, in particular the barn, to support SAR bats and Barn Swallow.</p> <p>Erosion and sediment control fences will deter wildlife (including snakes and turtles), away from construction.</p> <p>In the event that wildlife is observed within the construction limits, a qualified biologist and the MECP should be contacted to confirm identification and to advise on next steps. The animal should be allowed to leave the site and under no circumstances should they be approached.</p> <p>Exclusion measures to prevent bat roosting and barn swallow nesting should be installed outside of the bat active window / barn swallow nesting window to prevent establishment of either species and additional permitting requirements under the <i>ESA</i> (2007).</p> <p>Structures that are to be removed should be inspected for evidence of bird nesting. If nests are suspected to be from barn swallows, the nests should be inspected and identified by an avian biologist. If any barn swallow nests are found that will be impacted by development, the</p>

Feature	Applicable Policies	Policy Intent	How Addressed
			<p>project should be registered with the MECP, and applicable compensation measures should be discussed.</p> <p>All outbuilding demolitions should take place outside of the bat active window (April 1 – September 30).</p>
Conservation Authority Regulated Lands	GRCA Ontario Regulation 150/06	GRCA regulates a portion of the subject lands	<p>A permit will be acquired by the proponent to carry out work within the regulated lands.</p> <p>Encroachment into the off-site wetland buffer is not required for the proposed development. Buffer plantings will be coordinated with the adjacent development.</p>
<p>Core Greenlands, specifically Wetlands, Habitats of Endangered or Threatened Species, Fish Habitat, and Hazardous Lands</p> <p>Greenlands Including Woodlands, Streams and Valleylands</p>	County of Wellington Official Plan	<p>Development is not permitted in significant wetlands or the significant habitat of endangered or threatened species except in accordance with provincial and federal requirements.</p> <p>Development and site alteration are not allowed in fish habitat except in accordance with provincial and federal regulations.</p> <p>As per the County OP, <i>“Generally, development shall be directed away from areas in which conditions exist which would pose risks to public health and safety or property caused by natural hazards”.</i></p> <p>This EIS is also intended to demonstrate that there will be no negative impacts to the Greenlands features and their functions.</p>	<p>Development is occurring outside of the Core Greenlands feature.</p> <p>Provided all mitigation measures can be adhered to, indirect impacts to Greenland features and their functions can be effectively mitigated.</p> <p>Confirmed SAR habitat is not present within the project limits.</p> <p>Although works are taking place within hazard lands, a permit is being sought from the GRCA to ensure compliance with O. Reg 150/06.</p>
County Tree By-law	County of Wellington Forest Conservation By-Law 5115-09	The removal of trees within woodlots greater than 1 ha is regulated based on tree density.	No woodland removal is proposed.

10.0 Conclusions

The development is proposed to replace croplands and the rural residential/farm operations area with the works yard. Retention of trees within the tree collection, south hedgerow and around the rural residential area is proposed. Development is buffered from the natural heritage functions of the wetland, so impacts are not anticipated if mitigation measures are implemented as described.

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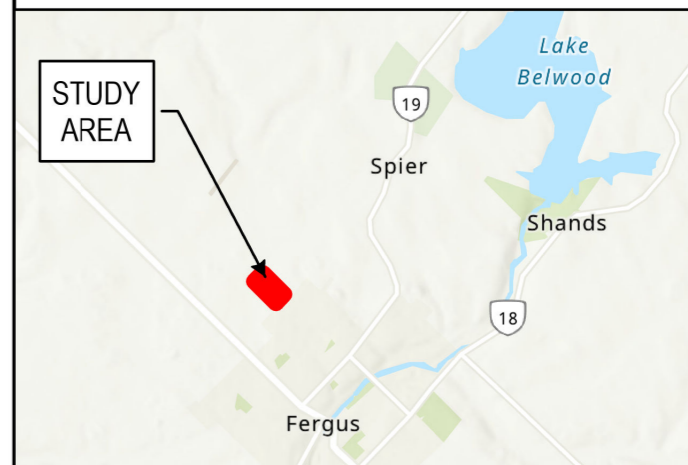
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Figures



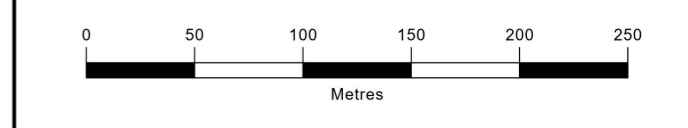
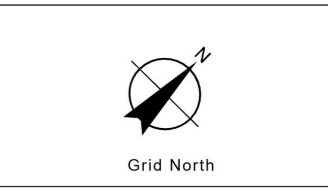
 Study Area



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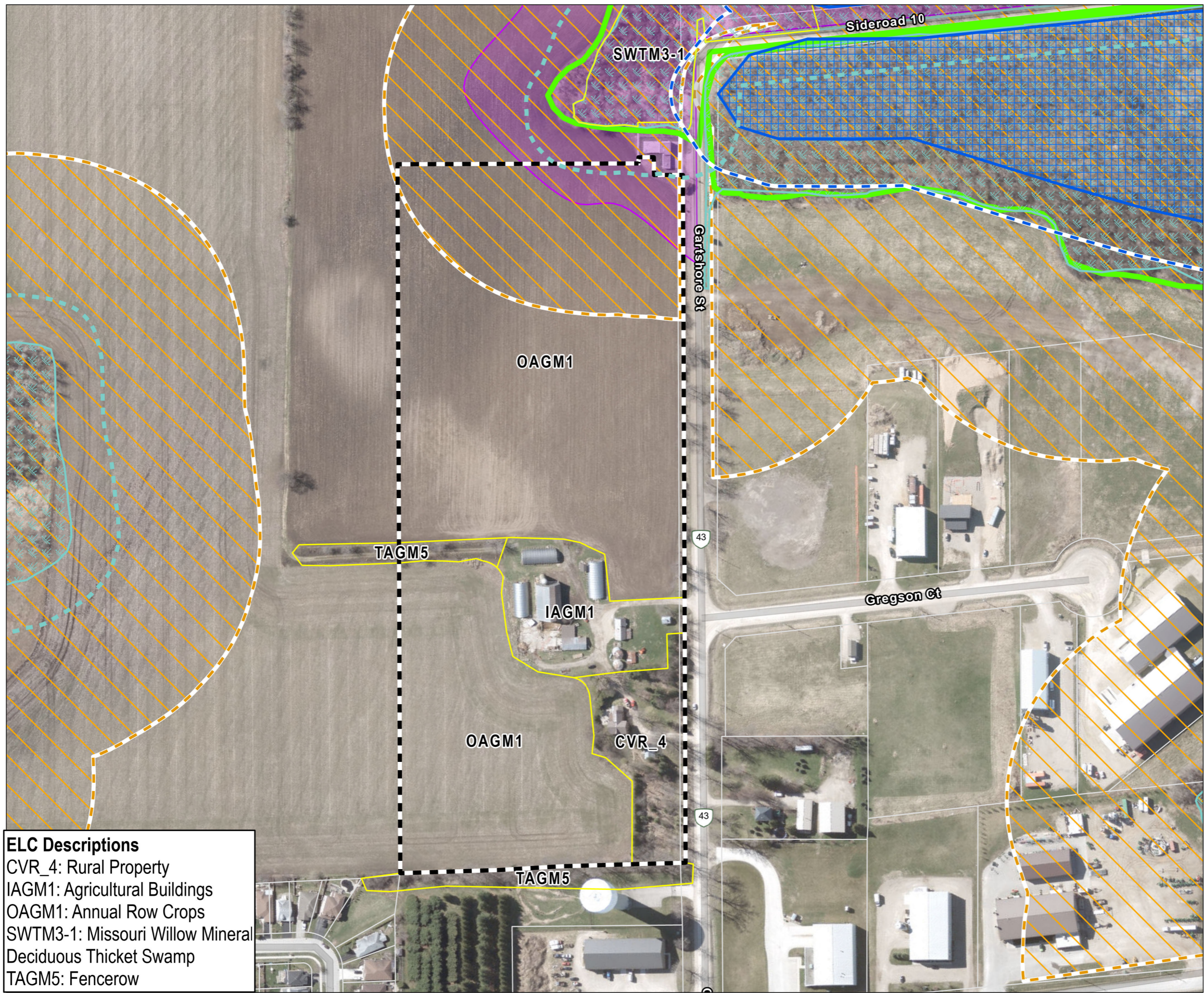
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Client
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Figure Title
**CENTRE WELLINGTON
 OPERATIONS CENTRE
 SCOPED EIS
 STUDY AREA**

Drawn	Checked	Date	Figure No. 1
HN	KB	2023/02/01	
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Legend

- Wetland (GRCA)
- Wetland 30m Buffer
- GRCA Regulation Limit
- White-tailed Deer Wintering Area (Stratum 2)
- Natural Heritage System Area (Growth Plan for the Greater Golden Horseshoe)
- Estimated Floodplain (GRCA)
- Floodplain 30m Setback
- Ecological Land Classification
- Study Area

Sources:

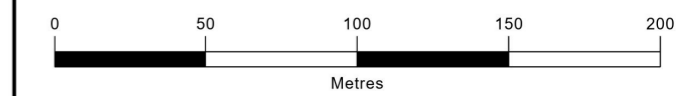
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Datum: North American 1983 CSRS		<p>Grid North</p>
Coord. System: NAD 1983 CSRS UTM Zone 17N		
Projector: Transverse Mercator		
Central Meridian: 81°0'0.00"W		
False Easting: 500,000m	False Northing: 0m	
Page Orientation: -45°		Scale Factor: 0.99960



Client

RDHA

Figure Title







**CENTRE WELLINGTON
OPERATIONS CENTRE
SCOPED EIS
EXISTING CONDITIONS**

ELC Descriptions

CVR_4: Rural Property
 IAGM1: Agricultural Buildings
 OAGM1: Annual Row Crops
 SWTM3-1: Missouri Willow Mineral Deciduous Thicket Swamp
 TAGM5: Fencerow

Drawn	Checked	Date	Figure No. 2
HN	KB	2023/02/06	
Scale	Project No. 300055234		
H 1:2,500			



-  Proposed Development
-  Wetland (GRCA)
-  Wetland 30m Buffer
-  Wetland Buffer Enroachment (228m²)
-  Proposed Sod Areas
-  Study Area


Sources:


1. Ministry of Natural Resources and Forestry, © King's Printer for Ontario.
2. Natural Resources Canada, © His Majesty the King in Right of Canada.

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Datum: North American 1983 CSRS		 Grid North
Coord. System: NAD 1983 CSRS UTM Zone 17N		
Projector: Transverse Mercator		
Central Meridian: 81°0'0.00"W		
False Easting: 500,000m	False Northing: 0m	
Page Orientation: -45°		Scale Factor: 0.99960



0 50 100 150 200
Metres



Client

RDHA

Figure Title

**CENTRE WELLINGTON
OPERATIONS CENTRE
SCOPED EIS
PROPOSED DEVELOPMENT**

Drawn	Checked	Date	Figure No. 3
HN	KB	2023/04/05	
Scale	Project No.		
H 1:2,500		300055234	



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Significant Wildlife Habitat Screening Table

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
Table 1.1: Seasonal Concentration Areas of Animals						
Waterfowl Stopover & Staging Areas (Terrestrial) <u>Rationale:</u> Habitat important to migrating waterfowl.	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). <ul style="list-style-type: none"> 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. 	No potential: <ul style="list-style-type: none"> Suitable ecosite to support this feature is not present. 	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	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." <ul style="list-style-type: none"> Any mixed species aggregations of 100 or more individuals required. The flooded field ecosite habitat plus a 100-300 m radius area, dependent on local site conditions and adjacent land use is the SWH. 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. 	N/A
Waterfowl Stopover & Staging Areas (Aquatic) <u>Rationale:</u>	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	<ul style="list-style-type: none"> Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and SWM ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. 	No potential: <ul style="list-style-type: none"> Suitable ecosite to support this feature is not present. Offsite wetlands may provide suitable stopover areas but will not be impacted by the proposed development 	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	Studies carried out & verified presence of: <ul style="list-style-type: none"> 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 Ecological Land Classification 	Low potential in off-site wetland. Studies to confirm presence / absence were not included in the scope of work for this project.

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
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.		<ul style="list-style-type: none"> These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). 		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	(ELC) ecosites and a 100 m radius area is the SWH. <ul style="list-style-type: none"> Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are SWH. 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. 	
Shorebird Migratory Stopover Area Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	<ul style="list-style-type: none"> 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. 	No potential: <ul style="list-style-type: none"> Suitable ecosite to support this feature is not present. 	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	Studies confirming: <ul style="list-style-type: none"> 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 (<24 hrs.) 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 100 m radius area. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
					<ul style="list-style-type: none"> • SWHMIST Index #8 provides development effects and mitigation measures. 	
<p>Raptor Wintering Area</p> <p><u>Rationale:</u> Sites used by multiple species, a high number of individuals and used annually are most significant.</p>	<p><u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class;</p> <p><u>Forest:</u> FOD, FOM, FOC.</p> <p><u>Upland:</u> CUM; CUT; CUS; CUW.</p> <p><u>Bald Eagle:</u> 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).</p>	<ul style="list-style-type: none"> • 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 wind swept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting. 	<p>No potential:</p> <ul style="list-style-type: none"> • Study area lacks suitably large upland communities to support overwintering raptors 	<p>Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl</p> <p><u>Special Concern:</u> Short-eared Owl Bald Eagle</p>	<p>• SWHMIST Index #8 provides development effects and mitigation measures.</p> <p>Studies confirm the use of these habitats by:</p> <ul style="list-style-type: none"> • One or more Short-eared Owls or; One or more Bald Eagle 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. 	N/A
<p>Bat Hibernacula</p> <p><u>Rationale:</u></p>	<p>Bat Hibernacula may be found in these ecosites:</p>	<ul style="list-style-type: none"> • Hibernacula may be found in caves, mine shafts, underground 	<p>No potential:</p> <ul style="list-style-type: none"> • Suitable ecosite to support this feature is not present. 	<p>Big Brown Bat Tri-coloured Bat</p>	<ul style="list-style-type: none"> • All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200 m radius around the 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
Bat hibernacula are rare habitats in all Ontario landscapes.	CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	foundations and Karsts. <ul style="list-style-type: none"> Active mine sites should not be considered as SWH. The locations of bat hibernacula are relatively poorly known. 			entrance of the hibernaculum for most development types and 1000 m for wind farms. <ul style="list-style-type: none"> Studies are to be conducted during the peak swarming period (August to September). 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. 	
Bat Maternity Colonies Rationale: Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Maternity colonies considered SWH are found in forested ecosites. All ELC ecosites in ELC Community Series: FOD FOM SWD SWM	<ul style="list-style-type: none"> 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 (>25 cm 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 	No potential: <ul style="list-style-type: none"> Suitable ecosite to support this feature is not present. BMC may be supported within the off-site PSW complex/	Big Brown Bat Silver-haired Bat	<ul style="list-style-type: none"> Maternity Colonies with confirmed use by: <ul style="list-style-type: none"> >10 Big Brown Bats >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. 	Moderate potential within off-site swamp. No potential within Subject Property.

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
		areas with at least 21 snags/ha are preferred.				
<p>Turtle Wintering Areas</p> <p><u>Rationale:</u> Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.</p>	<p>Snapping and Midland Painted Turtles.</p> <p>ELC Community Classes:</p> <p>SW, MA, OA and SA</p> <p>ELC Community Series:</p> <p>FEO and BOO</p> <p>For Northern Map Turtle: Open water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.</p>	<ul style="list-style-type: none"> For most turtles, wintering areas are in the same general area as their core habitat. Water must 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. 	<p>No potential:</p> <ul style="list-style-type: none"> Suitable ecosite to support this feature is not present. <p>TWA may be supported within the off-site PSW complex.</p>	<p>Midland Painted Turtle</p> <p>Special Concern: Northern Map Turtle Snapping Turtle</p>	<ul style="list-style-type: none"> 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 (September–October) or spring (March–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. 	<p>Low potential in off-site wetland. Studies to confirm presence / absence were not included in the scope of work for this project.</p>
<p>Reptile Hibernaculum</p> <p><u>Rationale:</u> Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.</p>	<p>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.</p>	<ul style="list-style-type: none"> 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 	<p>No potential</p> <ul style="list-style-type: none"> Candidate reptile hibernacula were not observed during field investigations 	<p>Snakes: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake</p> <p>Special Concern: Milksnake Eastern Ribbonsnake</p>	<p>Studies confirming:</p> <ul style="list-style-type: none"> 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) 	<p>N/A</p>

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
	<p>Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator.</p> <p>For Five-lined Skink, ELC Community Series of FOD and FOM and ecosites: FOC1 and FOC3.</p>	<p>piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH.</p> <ul style="list-style-type: none"> • 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 groundcover. • Five-lined Skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. 		<p>Lizard: Special Concern: (Southern Shield population): Five-lined Skink</p>	<p>on sunny warm days in Spring (April/May) and Fall (September/October).</p> <ul style="list-style-type: none"> • 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 near 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. 	
<p>Colonially - Nesting Bird Breeding Habitat (Bank & Cliff)</p> <p>Rationale: Historical use and number of</p>	<p>Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns.</p>	<ul style="list-style-type: none"> • 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 	<p>No potential:</p> <ul style="list-style-type: none"> • Suitable ecosite to support this feature is not present 	<p>Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)</p>	<p>Studies confirming:</p> <ul style="list-style-type: none"> • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
<p>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.</p>	<p>Habitat found in the following ecosites:</p> <p>CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1</p>	<p>structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles.</p> <ul style="list-style-type: none"> Does not include a licensed/permitted Mineral Aggregate Operation. 			<ul style="list-style-type: none"> A colony identified as SWH will include a 50 m 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. 	
<p>Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)</p> <p>Rationale: Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.</p>	<p>SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1</p>	<ul style="list-style-type: none"> 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. 	<p>No potential:</p> <ul style="list-style-type: none"> Suitable ecosite to support this feature is not present <p>Moderate potential within offsite wetlands</p>	<p>Great Blue Heron Black-crowned Nigh-Heron Great Egret Green Heron</p>	<p>Studies confirming:</p> <ul style="list-style-type: none"> Presence of 2 or more active nests of Great Blue Heron or other listed species. The habitat extends from the edge of the colony and a minimum 300 m radius or extent of the Forest ecosite containing the colony or any island <15.0 ha 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. 	<p>Moderate potential in off-site wetland. Studies to confirm presence / absence were not included in the scope of work for this project.</p>
<p>Colonially - Nesting Bird Breeding Habitat (Ground)</p> <p>Rationale: Colonies are important to</p>	<p>Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map).</p>	<ul style="list-style-type: none"> Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. Brewers Blackbird colonies are found 	<p>No potential:</p> <ul style="list-style-type: none"> Suitable ecosite to support this feature is not present 	<p>Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird</p>	<p>Studies confirming:</p> <ul style="list-style-type: none"> 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. 	<p>N/A</p>

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
local bird population, typically sites are only known colony in area and are used annually.	Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). MAM1 – 6 MAS1 – 3 CUM CUT CUS	loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands.			<ul style="list-style-type: none"> 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 150 m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0 ha 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. 	
<p>Migratory Butterfly Stopover Areas</p> <p><u>Rationale:</u> Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.</p>	<p>Combination of ELC Community Series; need to have present one Community Series from each land class.</p> <p><u>Field:</u> CUM CUT CUS</p> <p><u>Forest:</u> FOC FOD FOM CUP</p> <p>Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.</p>	<ul style="list-style-type: none"> 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 Erie or 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 	<p>No potential</p> <ul style="list-style-type: none"> Site is not located within 5km of Lake Ontario 	<p>Painted Lady Red Admiral</p> <p><u>Special Concern</u> Monarch</p>	<p>Studies confirm:</p> <ul style="list-style-type: none"> The presence of Monarch Use Days (MUD) during fall migration (August/October). 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. 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
		shelter are requirements for this habitat. <ul style="list-style-type: none"> 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. 				
Landbird Migratory Stopover Areas Rationale: Sites with a high diversity of species as well as high numbers are most significant.	All ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	<ul style="list-style-type: none"> Woodlots >10 ha in size and within 5 km of Lake Ontario. If woodlands are rare in an area of shoreline, woodland fragments 2-5 ha can be considered for this habitat. If multiple woodlands are located along the shoreline those Woodlands <2 km 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 5 km of Lake Ontario are Candidate SWH. 	No potential <ul style="list-style-type: none"> Site is not located within 5km of Lake Ontario 	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptors species: <i>Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)</i>	Studies confirm: <ul style="list-style-type: none"> 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 (April/May) and fall (August/October) migration using standardized assessment techniques. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. SWHMIST Index #9 provides development effects and mitigation measures. 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
<p>Deer Yarding Areas</p> <p><u>Rationale:</u> 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.</p>	<p>Note: MNRF to determine this habitat.</p> <p>ELC Community Series providing a thermal cover component for a deer yard would include:</p> <p>FOM FOC SWM SWC</p> <p>Or these ELC ecosites:</p> <p>CUP2 CUP3 FOD3 CUT</p>	<ul style="list-style-type: none"> 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 	<p>Not present within Subject Property</p> <p>Off-site PSW has been identified by the MNRF as a White-tailed Deer Wintering Area (stratum 2).</p>	<p>White-tailed Deer</p>	<p>No Studies Required:</p> <ul style="list-style-type: none"> Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40 cm 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 MNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by MNRF 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. 	<p>Confirmed present in off-site wetland. Studies to confirm presence / absence were not included in the scope of work for this project.</p>

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
		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%. <ul style="list-style-type: none"> • MNRF 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. 				
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	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.	<ul style="list-style-type: none"> • Woodlots will typically be >100 ha in size. Woodlots <100 ha 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 	Not present within Subject Property <ul style="list-style-type: none"> • Off-site PSW has been identified by the MNRF as a White-tailed Deer Wintering Area (stratum 2). 	White-tailed Deer	Studies confirm: <ul style="list-style-type: none"> • 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 (January/February) when >20 cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. 	Moderate potential in off-site wetland. Studies to confirm presence / absence were not included in the scope of work for this project.

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
the impacts of winter conditions.		depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. <ul style="list-style-type: none"> Large woodlots > 100 ha 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. 			<ul style="list-style-type: none"> 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. 	
Table 1.2.1: Rare Vegetation Communities						
Cliffs and Talus Slopes Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC ecosite within Community Series: TAO CLO TAS CLS TAT CLT	<ul style="list-style-type: none"> A Cliff is vertical to near vertical bedrock >3 m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris. 	Not present		<ul style="list-style-type: none"> Most cliff and talus slopes occur along the Niagara Escarpment. Confirm any ELC Vegetation Type for Cliffs or Talus Slopes. SWHMiST Index #21 provides development effects and mitigation measures. 	N/A
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	<ul style="list-style-type: none"> 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 	Not present		<ul style="list-style-type: none"> A sand barren area >0.5 ha in size. Confirm any ELC Vegetation Type for Sand Barrens. Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). SWHMiST Index #20 provides development effects and mitigation measures. 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
	(SBT1). Tree cover always ≤ 60%.	barren to tree covered, but less than 60%.				
<p>Alvar</p> <p><u>Rationale:</u> Alvars are extremely rare habitats in Ecoregion 6E.</p>	<p>ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2</p> <p>Five Alvar Indicator Species:</p> <p><i>Carex crawei</i> <i>Panicum philadelphicum</i> <i>Eleocharis compressa</i> <i>Scutellaria parvula</i> <i>Trichostema brachiatum</i></p> <p>These indicator species are very specific to Alvars within Ecoregion 6E.</p>	<ul style="list-style-type: none"> 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. Alvar is particularly rare in Ecoregion 6E where the only known sites are found in the western islands of Lake Erie. 	Not present		<p>Field studies that identify:</p> <ul style="list-style-type: none"> An Alvar site > 0.5 ha in size. 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 is 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. 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
<p>Old Growth Forest</p> <p><u>Rationale:</u> Due to historic logging practices and land clearance for agriculture, old growth forest is rare in the Ecoregion 6E.</p>	<p>Forest Community Series:</p> <p>FOD FOC FOM SWD SWC SWM</p>	<ul style="list-style-type: none"> 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. 	Not present		<p>Field Studies will determine:</p> <ul style="list-style-type: none"> If dominant trees species are >140 years old, then the area containing these trees is SWH. 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. 	N/A
<p>Savannah</p> <p><u>Rationale:</u> Savannahs are extremely rare habitats in Ontario.</p>	<p>TPS1 TPS2 TPW1 TPW2 CUS2</p>	<ul style="list-style-type: none"> A Savannah is a tallgrass prairie habitat that has tree cover between 25–60%. 	Not present		<p>Field studies confirm:</p> <ul style="list-style-type: none"> 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. 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 is exotic sp.). SWHMIST Index #18 provides development effects and mitigation measures. 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
<p>Tallgrass Prairie</p> <p><u>Rationale:</u> Tallgrass Prairies are extremely rare habitats in Ontario.</p>	TPO1 TPO2	<ul style="list-style-type: none"> No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway Right of Ways (ROW) are not considered to be SWH. A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. 	Not present		<p>Field studies confirm:</p> <ul style="list-style-type: none"> 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 is exotic sp.). SWHMiST Index #19 provides development effects and mitigation measures. 	N/A
<p>Other Rare Vegetation Communities</p> <p><u>Rationale:</u> Plant communities that often contain rare species which depend on the habitat for survival.</p>	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps. 	Not present		<ul style="list-style-type: none"> ELC ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M. The MNRF/Natural Heritage Information Centre (NHIC) will have up to date listing for rare vegetation communities. <p>Field studies should confirm:</p> <ul style="list-style-type: none"> 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. 	N/A

Table 1.2.2: Specialized Habitats for Wildlife considered Significant Wildlife Habitat

<p>Waterfowl Nesting Area</p> <p><u>Rationale:</u></p>	<p>All upland habitats located adjacent to these wetland</p>	<ul style="list-style-type: none"> A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a 	<p>No potential</p> <ul style="list-style-type: none"> Subject Lands do not contain a wetland feature or 	<p>American Black Duck Northern Pintail Northern Shoveler Gadwall</p>	<p>Studies confirmed:</p>	N/A
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Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	<p>ELC ecosites are Candidate SWH:</p> <p>MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4</p> <p>Note: includes adjacency to Provincially Significant Wetlands (PSW).</p>	<p>wetland (>0.5ha) and any small wetlands (0.5ha) within 120 m 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.</p> <ul style="list-style-type: none"> 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 (>40 cm dbh) in woodlands for cavity nest sites. 	<p>upland communities to support waterfowl</p>	<p>Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard</p>	<ul style="list-style-type: none"> 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. 	
<p>Bald Eagle & Osprey Nesting, Foraging & Perching Habitat</p> <p>Rationale: Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations</p>	<p>ELC Forest Community Series:</p> <p>FOD FOM FOC SWD SWM and SWC (directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.</p>	<ul style="list-style-type: none"> 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. 	<p>No potential</p> <ul style="list-style-type: none"> Forested communities are not present within the Subject lands Off-site wetland may support bald eagle and osprey nesting but is not located close to a large watercourse, pond, or lake 	<p>Osprey</p> <p>Special Concern Bald Eagle</p>	<p>Studies confirm the use of these nests by:</p> <ul style="list-style-type: none"> 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 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
may be lost due to increasing shoreline development pressures and scarcity of habitat.		<ul style="list-style-type: none"> Nests located on man-made objects are not to be included as SWH (e.g., telephone poles and constructed nesting platforms). 			<p>large trees within this area is important.</p> <ul style="list-style-type: none"> For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800 m 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. 	
<p>Woodland Raptor Nesting Habitat</p> <p><u>Rationale:</u> Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.</p>	<p>May be found in all forested ELC ecosites.</p> <p>May also be found in: SWC SWM SWD and CUP3</p>	<ul style="list-style-type: none"> All natural or conifer plantation woodland/forest stands >30 ha with >10ha of interior habitat. Interior habitat determined with a 200 m buffer. Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. 	<p>No potential within Subject Lands</p> <ul style="list-style-type: none"> Forested habitats are not present within the Subject Lands The offsite PSW lacks the necessary interior forest habitat 	<p>Northern Goshawk Cooper’s Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk</p>	<p>Studies confirm:</p> <ul style="list-style-type: none"> Presence of 1 or more active nests from species list is considered significant. Red-shouldered Hawk and Northern Goshawk – A 400 m 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 200 m radius around the nest is the SWH. 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
		<p>Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands.</p> <ul style="list-style-type: none"> In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. 			<ul style="list-style-type: none"> Broad-winged Hawk and Coopers Hawk– A 100 m radius around the nest is the SWH. Sharp-Shinned Hawk – A 50 m 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. 	
<p>Turtle Nesting Areas</p> <p><u>Rationale:</u> These habitats are rare and when identified will often be the only breeding site for local populations of turtles.</p>	<p>Exposed mineral soil (sand or gravel) areas adjacent (<100 m) or within the following ELC ecosites:</p> <p>MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1</p>	<ul style="list-style-type: none"> 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 	<p>No potential</p> <ul style="list-style-type: none"> On-site soils are used for row-cropping during growing season rendering the site unsuitable for turtle nesting 	<p>Midland Painted Turtle</p> <p><u>Special Concern Species:</u> Northern Map Turtle Snapping Turtle</p>	<p>Studies confirm:</p> <ul style="list-style-type: none"> 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 30-100 m 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 30-100 m 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. 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
		marshes, lakes, and rivers are most frequently used.			<ul style="list-style-type: none"> • SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat. 	
<p>Seeps and Springs</p> <p>Rationale: Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.</p>	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.	<ul style="list-style-type: none"> • 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. 	<p>Not present</p> <ul style="list-style-type: none"> • Seeps and springs not observed during site investigations 	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	<p>Field Studies confirm:</p> <ul style="list-style-type: none"> • 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. 	N/A
<p>Amphibian Breeding Habitat (Woodland)</p> <p>Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.</p>	<p>All ecosites associated with these ELC Community Series:</p> <p>FOC FOM FOD SWC SWM SWD</p> <p>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</p>	<ul style="list-style-type: none"> • Presence of a wetland, pond or woodland pool (including vernal pools) >500 m² (about 25 m diameter) within or adjacent (within 120 m) 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 	No potential within the Subject Property. Offsite PSW may provide suitable breeding habitat to support amphibian breeding (moderate).	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	<p>Studies confirm:</p> <ul style="list-style-type: none"> • 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 230 m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland 	Moderate potential in off-site wetland. Studies to confirm presence / absence were not included in the scope of work for this project.

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
	reduced risk to migrating amphibians.	used as breeding habitat.			to the woodland is to be included in the habitat. <ul style="list-style-type: none"> • SWHMiST Index #14 provides development effects and mitigation measures. 	
<p>Amphibian Breeding Habitat (Wetlands)</p> <p><u>Rationale:</u> Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.</p>	<p>ELC Community Classes:</p> <p>SW MA FE BO OA and SA.</p> <p>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.</p>	<ul style="list-style-type: none"> • Wetlands >500 m² (about 25 m 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. 	<p>Not present</p> <ul style="list-style-type: none"> • Wetland communities are not present within the Subject Lands • Off-site wetlands are swamp communities and do not meet the criteria to be considered amphibian breeding habitat (wetlands) 	<p>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</p>	<p>Studies confirm:</p> <ul style="list-style-type: none"> • 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. 	N/A
<p>Woodland Area-Sensitive Bird Breeding Habitat</p> <p><u>Rationale:</u> Large, natural blocks of mature</p>	<p>All ecosites associated with these ELC Community Series:</p> <p>FOC FOM</p>	<ul style="list-style-type: none"> • Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs. old) forest stands or woodlots >30 ha. 	<p>No potential</p> <ul style="list-style-type: none"> • Woodlands are not present within the Subject Lands • Offsite PSW complex lacks interior forest habitat that meets the minimum criteria described in Table 1.2.2 	<p>Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler</p>	<p>Studies confirm:</p> <ul style="list-style-type: none"> • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	FOD SWC SWM SWD	<ul style="list-style-type: none"> Interior forest habitat is at least 200 m from forest edge habitat. 		Ovenbird Scarlet Tanager Winter Wren Special Concern: Cerulean Warbler Canada Warbler	Warblers is to be considered SWH. <ul style="list-style-type: none"> 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. 	

Table 1.3: Habitat for Species of Conservation Concern considered Significant Wildlife Habitat

Marsh Breeding Bird Habitat Rationale: Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites	<ul style="list-style-type: none"> 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. 	No potential <ul style="list-style-type: none"> Suitable vegetation community is not present within Study Area 	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	Studies confirm: <ul style="list-style-type: none"> Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes 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. 	N/A
Open Country Bird Breeding Habitat	CUM1 CUM2	<ul style="list-style-type: none"> Large grassland areas (includes natural and cultural 	No potential	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow	Field Studies confirm:	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
<p>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.</p>		<p>fields and meadows) >30 ha.</p> <ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Suitable vegetation community is not present within the Study Area 	<p>Northern Harrier Savannah Sparrow</p> <p>Special Concern Short-eared Owl</p>	<ul style="list-style-type: none"> 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. 	
<p>Shrub/Early Successional Bird Breeding Habitat</p> <p>Rationale: This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined</p>	<p>CUT1 CUT2 CUS1 CUS2 CUW1 CUW2</p> <p>Patches of shrub ecosites can be complexed into a larger habitat for some bird species.</p>	<ul style="list-style-type: none"> Large field areas succeeding to shrub and thicket habitats >10 ha 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). 	<p>No potential</p> <ul style="list-style-type: none"> Thicket communities within the Study Area are not sufficiently large to meet the minimum criteria 	<p>Indicator Spp: Brown Thrasher Clay-coloured Sparrow</p> <p>Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher</p> <p>Special Concern: Yellow-breasted Chat Golden-winged Warbler</p>	<p>Field Studies confirm:</p> <ul style="list-style-type: none"> 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 SWH. The area of the SWH is the contiguous ELC ecosite field/thicket area. Conduct field investigations of the most likely areas in spring 	N/A

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
significantly over the past 40 years based on CWS (2004) trend records.		<ul style="list-style-type: none"> 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. 			and early summer when birds are singing and defending their territories. <ul style="list-style-type: none"> Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. SWHMiST cxlix Index #33 provides development effects and mitigation measures. 	
Terrestrial Crayfish Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	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.	<ul style="list-style-type: none"> 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. 	No potential within the Subject lands. Moderate potential in association with the off-site PSW within the Study Area	Chimney or Digger Crayfish (<i>Fallicambarus fodiens</i>) Devil Crayfish or Meadow Crayfish (<i>Cambarus Diogenes</i>)	Studies Confirm: <ul style="list-style-type: none"> 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. 	Not present <ul style="list-style-type: none"> Terrestrial Crayfish Chimneys were not observed within the off-site wetlands during field investigations.
Special Concern and Rare Wildlife Species	All plant and animal Element Occurrences (EO) within a 1 or 10 km grid.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or	No potential for Special Concern and Rare Wildlife Species within the Subject Property.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the NHIC.	Studies Confirm: <ul style="list-style-type: none"> Assessment/inventory of the site for the identified Special Concern or rare species needs 	Moderate potential. Targeted surveys to confirm presence / absence were not included in the scope of this project.

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
<p>Rationale: These species are quite rare or have experienced significant population declines in Ontario.</p>	Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	provincially Rare species; linking candidate habitat on the site needs to be completed to ELC ecosites.	Moderate potential for Special Concern and Rare Wildlife Species to supported within the off-site PSW.		<p>to be completed during the time of year when the species is present or easily identifiable.</p> <ul style="list-style-type: none"> 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. 	

Table 1.4.1: Animal Movement Corridors

<p>Amphibian Movement Corridors</p> <p>Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.</p>	<p>Corridors may be found in all ecosites associated with water.</p> <p>Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.</p>	<ul style="list-style-type: none"> 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. 	<p>No potential.</p> <ul style="list-style-type: none"> Amphibian Breeding Habitat–Wetland is not present 	<p>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</p>	<ul style="list-style-type: none"> 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 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m. 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. 	N/A
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Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
<p>Deer Movement Corridors</p> <p><u>Rationale:</u> 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.</p>	<p>Corridors may be found in all forested ecosites.</p> <p>A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.</p>	<p>Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH from Table 1.1 of this schedule.</p> <ul style="list-style-type: none"> A deer wintering habitat identified by the MNRF 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). 	<p>Not present.</p> <ul style="list-style-type: none"> Stratum 2 deer habitat occurs within all forested areas of the Study Area. Any movement corridors are located outside of the Study Area. 	White-tailed Deer	<ul style="list-style-type: none"> 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 200 m wide with gaps <20 m and if following riparian area with at least 15 m of vegetation on both sides of waterway. Shorter corridors are more significant than longer corridors, SWHMiST Index #39 provides development effects and mitigation measures. 	N/A

Table 1.5.1: Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 6E

<p>6E-14 Mast Producing Areas</p> <p><u>Rationale:</u> The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is</p>	<p>All Forested habitat represented by ELC Community Series:</p> <p>FOM FOD</p>	<ul style="list-style-type: none"> Woodland ecosites >30 ha with mast-producing tree species, either soft (cherry) or hard (oak and beech). 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. 	<p>No potential.</p> <ul style="list-style-type: none"> Suitable vegetation community is not present within the Study Area 	Black Bear	<p>All woodlands >30 ha with a 50% composition of these ELC Vegetation Types are considered significant:</p> <p>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</p>	N/A
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Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
important for bear.					FOD6-5 SWHMiST Index #3 provides development effects and mitigation measures.	
<p>6E- 17 Lek</p> <p>Rationale: Sharp-tailed grouse only occur on Manitoulin Island in Ecoregion 6E, Leks are an important habitat to maintain their population.</p>	CUM CUS CUT	<ul style="list-style-type: none"> 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 >15 ha with adjacent shrublands and >30 ha with adjacent deciduous woodland. Conifer trees within 500 m are not tolerated. Grasslands (field/meadow) are to be >15 ha when adjacent to shrubland and >30 ha 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. 	<p>No potential.</p> <ul style="list-style-type: none"> Site is not located on Manitoulin Island 	Sharp-tailed Grouse	<ul style="list-style-type: none"> 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 cxlix Index #32 provides development effects and mitigation measures. 	N/A



BURNSIDE

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Appendix B

SAR Screening Table

COMMON NAME	SCIENTIFIC NAME	Provincial S-RANK ¹	Provincial SARO Status ²	COSEWIC ³	Federal SARA Status ³	Federal SARA Schedule ⁴	Habitat Description	Habitat Present on Site?	Species Observed?
Birds									
Acadian Flycatcher	<i>Empidonax virescens</i>	S2S3B	END	END	END	1	Generally requires large areas of mature, undisturbed forest; avoids the forest edge; often found in well wooded swamps and ravines. ⁷	No potential. Suitable habitat is absent from the Study Area.	N/A
Bald Eagle	<i>Haliaeetus leucocephalus</i>	S2N,S4B	SC	NAR	NAR	No schedule	Prefers deciduous and mixed deciduous forest and habitat close to water bodies such as lakes and rivers. They roost in "supercanopy" trees such as pine. ⁷	No potential. Suitable habitat is absent from the Study Area.	N/A
Bank Swallow	<i>Riparia riparia</i>	S4B	THR	THR	THR	1	Prefers open habitats including, farmland, lake/river shorelines, grasslands, and wetlands. Nests in exposed earthen banks along shorelines and in artificial sites such as gravel pits. ⁷	No potential. Exposed earthen banks are not present.	N/A
Barn Swallow	<i>Hirundo rustica</i>	S4B	SC	SC	SC	1	Prefers farmland, lake/river shorelines, wooded clearings, urban populated areas, rocky cliffs, and wetlands. Nests inside or on exterior of buildings; under bridges and in road culverts; on rock faces, and in caves, etc. ⁸	Moderate potential. Suitable nesting habitat present in association with on-site buildings.	No. The interior and exterior of all barns as well as the exterior of additional outbuildings were examined for evidence of Barn Swallow nesting. Although no evidence was found, there is potential for Barn Swallows to nest on and / or within buildings in the future. Suitable foraging habitat is present within the Study Area.
Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	THR	THR	THR	1	Generally prefers open grasslands and hay fields for nesting, typically featuring relatively tall vegetation. Sometimes uses large fields of winter wheat and rye in southwestern Ontario. Sensitive to vegetation structure and composition. Positively associated with high grass-to-forb ratios; moderate litter depth; tolerate wetter portions of fields compared to Eastern Meadowlark (EAME) and more likely to nest closer to field centres rather than field margins. Lower tolerance to presence of patches of bare ground. Appear to prefer larger fields than EAME. ⁹	No potential. Suitable habitat not present.	N/A
Canada Warbler	<i>Cardellina canadensis</i>	S4B	SC	THR	THR	1	Generally prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest. ⁷	No potential to be supported within the Subject Lands. Moderate potential to be supported within the adjacent Thicket Swamps within the Study Area.	N/A
Chimney Swift	<i>Chaetura pelagica</i>	S4B,S4N	THR	THR	THR	1	Historically nested in large hollow trees, other tree cavities and cracks in cliffs. Currently, most are found in developed areas in large, uncapped chimneys. Proximity to lakes is also a preferred habitat feature as they will forage for flying insects close to water. ⁷	No potential. Chimneys on-site are not suitable to support Chimney Swift nesting.	N/A
Common Nighthawk	<i>Chordeiles minor</i>	S4B	SC	SC	THR	1	Nests in open habitats, in forests and in urban areas. It prefers rock outcrops, alvars, sand barrens, bogs, fens, and in forests, openings created by clearcuts and burns. In southern Ontario, grasslands, agricultural fields, gravel pits, prairies, and alvars and at airports. In cities, it nests mostly on flat, graveled roofs but occasionally on railways and footpaths. ⁷	No potential. Suitable habitat not present.	N/A
Eastern Meadowlark	<i>Sturnella magna</i>	S4B	THR	THR	THR	1	Generally prefers grassy pastures, meadows and hay fields. Prefers moderately tall grass with abundant litter cover, a high proportion of grass cover, moderate forb density, low proportions of shrub and woody vegetation cover, and low percent of bare ground. Prefers to nest in drier sites and frequently nests around field margins. ⁹	No potential. Suitable habitat not present.	N/A
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	S4B	THR	THR	THR	1	Generally prefer semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred. In Ontario, its preferred habitats include rock or sand barrens with scattered trees, savannahs, old burns in a state of early forest succession, and open conifer plantations. ⁷	No potential. Suitable habitat not present.	N/A

COMMON NAME	SCIENTIFIC NAME	Provincial S-RANK ¹	Provincial SARO Status ²	COSEWIC ³	Federal SARA Status ³	Federal SARA Schedule ⁴	Habitat Description	Habitat Present on Site?	Species Observed?
Eastern Wood-pewee	Contopus virens	S4B	SC	SC	SC	1	Prefers open space near the nest in the form of forest edges, clearings, roadways, and water. Does not require large areas of woods but occurs less frequently in woodlots surrounded by development than in those without. ⁷	No potential to occur within the Subject Lands. Moderate potential to occur within off-site PSW within the Study Area.	No
Golden-winged Warbler	Vermivora chrysoptera	S4B	SC	THR	THR	1	Generally prefer areas of early successional vegetation, found primarily on field edges, hydro or utility right-of-ways, or recently logged areas. ⁷	No potential to be supported within the Subject Lands. Moderate potential to be supported within the adjacent Thicket Swamps within the Study Area.	No
Grasshopper Sparrow	Ammodramus savannarum	S4B	SC	SC	SC	1	Prefers drier, sparsely vegetated grasslands, particularly rough or unimproved pastures with scattered forb and shrub growth, at least 30 ha in size. It will occasionally also use cultivated hayfields and cereal crops. ⁷	No potential. Suitable habitat is not present within the Study Area.	No
Least Bittern	Ixobrychus exilis	S4B	THR	THR	THR	1	Most frequently found in marshes of at least 5 ha, although much smaller marshes, including sites such as cattail stands along creeks and farm ponds partially filled with cattail, may be used occasionally. Breeding sites typically dominated by cattail, but also sometimes bulrush, grasses, horsetail, and willow. Nests usually close to edge of a stand of vegetation or near openings such as muskrat trails, although may be as far as 45 m from open water. ⁷	No potential. Suitable habitat is not present within the Subject Lands or Study Area.	N/A
Louisiana Waterthrush	Parkesia motacilla	S3B	THR	THR	SC	1	Generally inhabits mature forests along steeply sloped ravines adjacent to running water. It prefers clear, cold streams and densely wooded swamps. ⁷	No potential. Mature forests are absent from the Study Area.	N/A
Olive-sided Flycatcher	Contopus cooperi	S4B	SC	SC	THR	1	Generally prefers natural forest edges and openings. The breeding habitat usually consists of mixed forest adjacent to rivers or wetlands. This species commonly nests in conifers such as White and Black Spruce, Jack Pine and Balsam Fir. ¹⁰	No potential within the Study Area, Mixed-wod forests are absent from the Study Area.	No
Peregrine Falcon	Falco peregrinus	S3B	SC	NAR	SC	1	Nests on cliffs near water bodies, or at urban sites such as tall buildings, bridges, and smokestacks. ⁷	No potential within the Study Area, suitable nesting habitat is absent.	N/A
Red-headed Woodpecker	Melanerpes erythrocephalus	S4B	END	END	THR	1	Breeds in open woodland and woodland edges, especially oak savannah and riparian forest. These habitats can occur in parks, golf courses, cemeteries and private woodlands. Existence of large, dead, weathered trees or live trees with large dead branches are an important characteristic of habitat. ⁷	Low potential to occur within Subject Lands.	No. Suitable large dead trees were not observed in the Study Area during the arborist reports. Unlikely to be breeding within the Subject Lands.
Short-eared Owl	Asio flammeus	S2N,S4B	SC	SC	SC	1	Generally prefers a wide variety of open habitats, including grasslands, peat bogs, marshes, sand-sage concentrations, old pastures and agricultural fields. ⁷	No potential. Suitable habitat is not present within the Subject Lands or Study Area.	N/A
Wood Thrush	Hylocichla mustelina	S4B	SC	THR	THR	1	Inhabits and breeds in woodlands ranging from small (3 ha) and isolated to large and contiguous. The presence of tall trees and a thick understorey are usually prerequisites for site occupancy. ⁷	No potential to occur within the Study Area. Adjacent PSW that occurs within the Study Area lacks tall trees.	No.
Mammals									
Eastern Small-footed Myotis	Myotis leibii	S2S3	END	END	No status	No schedule	Overwintering habitat: Caves and abandoned mines. According to the Recovery Strategy for the Eastern Small-footed Myotis in Ontario, summer / roosting habitats used by the species in Ontario are poorly understood, but elsewhere in its range it primarily roosts in open, sunny rocky habitats, and, occasionally, in buildings. Summer roosts for this species are believed to be located in close proximity to their hibernacula (i.e., less than 100 m). The species' preference for rocky habitats in summer may limit an individual's home range to those rocky areas which also contain hibernacula (i.e., karst areas and Canadian Shield areas containing abandoned mines with adits). ¹⁶	Moderate potential. Known to utilize buildings including barns as roosting habitat.	No.

COMMON NAME	SCIENTIFIC NAME	Provincial S-RANK ¹	Provincial SARO Status ²	COSEWIC ³	Federal SARA Status ³	Federal SARA Schedule ⁴	Habitat Description	Habitat Present on Site?	Species Observed?
Little Brown Myotis	<i>Myotis lucifugus</i>	S4	END	END	END	1	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh). ¹⁵	Moderate potential. Known to utilize buildings including barns as roosting habitat. Suitable habitat is also present in association with the adjacent Provincially-Significant Wetlands	No.
Northern Myotis	<i>Myotis septentrionalis</i>	S3	END	END	END	1	Overwintering habitat: Caves and mines that remain above 0 Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.) ¹⁵	Moderate potential. Known to utilize buildings including barns as roosting habitat. Suitable habitat is also present in association with the adjacent Provincially-Significant Wetlands	No.
Tri-colored Bat	<i>Perimyotis subflavus</i>	S3?	END	END	END	1	Overwintering habitat: Deepest parts of caves and mines where temperature is the least variable. Maternal Roosts: Less is known about roosts of Tri-colored Bats. Most roost sites found within forested habitats. May roost in clumps of dead foliage and lichens. In more anthropogenically modified landscapes, maternity roosts may be barns or similar human-made structures. ¹⁵	Moderate potential. Known to utilize buildings including barns as roosting habitat. Suitable habitat is also present in association with the adjacent Provincially-Significant Wetlands	No.
Reptiles									
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	S4	NAR	SC	NAR	No schedule	Generally prefers waterbodies such as ponds, marshes, lakes and slow moving creeks that have a soft bottom and provide abundant basking sites and aquatic vegetation. ¹⁴	No potential within Subject Lands. May occur in association with the adjacent PSW within the Study Area.	No.
Vegetation									
American Chestnut	<i>Castanea dentata</i>	S1S2	END	END	END	1	Found in deciduous forest communities; this tree prefers arid forests with acid and sandy soils. ²⁰	Low potential. Suitable soils present.	Not observed.
American Ginseng	<i>Panax quinquefolius</i>	S2	END	END	END	1	Grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock). ²⁰	No potential. Suitable habitat not present within the Study Area.	N/A
Butternut	<i>Juglans cinerea</i>	S2?	END	END	END	1	Butternut grows best in rich, moist and well-drained soils or limestone gravel sites. They are less commonly found in dry, rocky and sterile soils. They generally grow alone or in small groups in deciduous forests that are commonly comprised of Basswood, Black Cherry, Beed, Black Walnut, Elm, Hemlock, Hickory, Oak, Red Maple, Sugar Maple, Poplar, White Ash and Yellow Birch. ⁶ In Ontario, they can be found throughout the southern Ontario, south of the Canadian Shield. ¹⁰	Low potential. Suitable soils present.	Not observed.
Hill's Pondweed	<i>Potamogeton hillii</i>	S2S3	SC	SC	0	0	Occurs in cold, clear, alkaline water. Often found within open channels of wetlands, streams, ponds, beaver ponds, near springs. Found in areas where water tends to collect. ²⁴	No potential to occur within the Subject Lands. Low potential to occur within association with PSW within the Study Area.	No
Smooth yellow false foxglove	<i>Aureolaria flava</i>	S2?	THR	No status	No status	No schedule	Dry, sandy, open woodlands and savannas. Often associated with White Oak, Hickory, and Pine. ²¹	No potential. Suitable is not present within the Study Area.	N/A

COMMON NAME	SCIENTIFIC NAME	Provincial S-RANK ¹	Provincial SARO Status ²	COSEWIC ³	Federal SARA Status ³	Federal SARA Schedule ⁴	Habitat Description	Habitat Present on Site?	Species Observed?
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¹**S-Ranks (provincial)**

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. (Provincial Status from MNR Biodiversity Explorer September 2012)

- S1 Critically Imperiled - Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
- S2 Imperiled - Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- S3 Vulnerable - Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

²**SARO Endangered Species Act, 2007**

(provincial status from MNR December 2014)

The provincial review process is implemented by the MNR's Committee on the Status of Species at Risk in Ontario (COSSARO).

- EXT Extinct - A species that no longer exists anywhere.
- EXP Extirpated - A species that no longer exists in the wild in Ontario but still occurs elsewhere.
- END Endangered - A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act (ESA) (END-R designations are no longer relevant as species are covered under new ESA April 2009)
- THR Threatened - A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
- SC Special Concern (formerly Vulnerable) - A species with characteristics that make it sensitive to human activities or natural events.
- NAR Not at Risk - A species that has been evaluated and found to be not at risk.
- DD Data Deficient (formerly Indeterminate) - A species for which there is insufficient information for a provincial status recommendation.

³**SARA (Federal Species at Risk Act) Status and Schedule (includes COSEWIC Status)**

The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

- EXT Extinct - A wildlife species that no longer exists.
- EXP Extirpated - A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
- END Endangered - A wildlife species that is facing imminent extirpation or extinction.
- THR Threatened - A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
- SC Special Concern - A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

⁴**SARA Schedule**

- Schedule 1:** is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.
- Schedule 2:** species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
- Schedule 3:** species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

⁵**Habitat Present on Site**

- Determination of suitability of the site to be support each species based on 'Key Habitats Used By Species'.
- Yes - Specific habitat present and species and / or evidence observed;
- Likely – The whole study area or portions of it contain conditions that could support the species;
- Unlikely – Few similarities between study area conditions and preferred habitat exist;
- No - Specific habitat not present and species and / or evidence not observed

⁶**Species Observed**

Reported sighting of species during fall field investigations by RJB biologists

Additional Sources:

Sources:

⁷ Cadman, M.D., et al. (eds). 2007. *Atlas of the Breeding Birds of Ontario, 2001-2005*. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp

⁸ Species at Risk Public Registry <http://www.sararegistry.gc.ca>

⁹ McCracken, J.D. et al. 2013. Recovery Strategy for the Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario, viii + 88 pp.

¹⁰ MNR SARO List Species Descriptions (http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_CSSR_SARO_LST_EN.html)

¹¹ COSEWIC Species Assessment Report

¹² Naughton, Donna. 2012. *The Natural History of Canadian Mammals*. Canadian Museum of Nature and University of Toronto Press, Toronto, + 784 pp

¹³ Farrar, John Laird, 2017, *Trees in Canada*, Natural Resources Canada | Canada Forest Services, and, Fitcheny & Whiteside Limited, pp.238 - 239

¹⁴ Ontario Nature Reptile and Amphibian Atlas (<https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/species/>)

¹⁵ Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. ix + 110 pp.

¹⁶ Humphrey, C. 2017. Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.

¹⁷ Department of Fisheries and Oceans (DFO) Aquatic Species at Risk found online at: <http://www.dfo-mpo.gc.ca/species-especies/sara-lep/identify-eng.html>.

¹⁸ Paulson, D. 2011. *Dragonflies and Damselflies of the East*. Princeton University Press, Princeton, NJ.

¹⁹ Harding, J.H., 1997. *Amphibians and Reptiles of the Great Lakes Region*. The University of Michigan Press. Ann Arbor, Michigan

²⁰ MNRF. 2018. City of Niagara Falls Species at Risk Table. Guelph District.

²¹ Michigan Flora found online at <https://michiganflora.net/search.aspx>

²² Natural Heritage Information Centre (<https://www.ontario.ca/page/get-natural-heritage-information>)

