HALDIMAND COUNTY

NATURAL HERITAGE CONSTRAINTS ANALYSIS

LAKE ERIE INDUSTRIAL PARK – HALDIMAND COUNTY, ON

JANUARY 31, 2022

NATURAL HERITAGE CONSTRAINTS ANALYSIS

LAKE ERIE INDUSTRIAL PARK – HALDIMAND COUNTY, ON

VERSION: FINAL

PROJECT NO.: 211-10308-00
DATE: JANUARY 31, 2022

WSP

January 31, 2022

HALDIMAND COUNTY
Administration Building
53 Thorburn St. S.,
Cayuga, ON N0A 1E0

Attention: Philip Wilson, C.E.T., PMP

Dear Sir,

Subject: Lake Erie Industrial Park – Environmental Assessment Addendum

We are pleased to present the Environmental Impact Study Addendum for the proposed works to construct a water treatment facility adjacent to the U.S Steel property in Haldimand County. Please review and provide your comments. If you have any questions, I can be reached by e-mail at mark.pomeroy@wsp.com or by telephone at 289-808-2031.

Yours sincerely,

Mark Pomeroy
Senior Project Manager / Biologist

WSP ref.: 211-10308-00

REVISION HISTORY

FIRST ISSUE

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January 31, 2022
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1 INTRODUCTION

This document describes the proposed changes to the Lake Erie Industrial Park Wastewater Treatment System Project File Report undertaken by Haldimand County in 2011. In accordance with the Municipal Class Environmental Assessment (Municipal Class EA), this Addendum contains a description, rationale and implications of the proposed changes, including proposed mitigation measures.

The LEIP and Stelco industrial lands are located on the north shore of Lake Erie (Appendix A: Figure 1) and comprise of over 4,000 hectares (ha) or 10,000 acres (ac) of industrially zoned land, a significant portion of which are vacant. Major industries include Stelco, Ontario Power Generation (OPG), Imperial Oil (ESSO) and Stelco Lake Erie Works Pickle Lines (formerly Nelson Steel).

1.1 BACKGROUND

In December 2011, Haldimand County, through its consultants AECOM, completed a Schedule 'C' Municipal Class Environmental Assessment (EA), for a new LEIP wastewater treatment facility. The existing LEIP wastewater system is reaching operational capacity and new MECP (formerly MoE) restrictions on the existing LEIP wastewater system indicated a new LEIP wastewater treatment system was required.

The purpose of the 2011 EA was to evaluate alternative solutions to address the deficiency of the current wastewater treatment facility. Eight alternative wastewater treatment solutions were evaluated:

1. Site new long term WWTP near existing lagoons
2. Site new package WWTP near existing lagoons and Outfall
3. Site new WWTP at new location with new outfall
4. Expand Upgrade current Lagoon system
5. Extend Municipal Sewers from adjacent system
6. Reduce wastewater flows
7. Limit Growth
8. Do nothing

Alternative 3 (site new WWTP at new location with new outfall) was identified as the preferred wastewater treatment solution as it could best address the problem/opportunity statement.

Two Candidate WWTP sites were identified:

- Site A – located north of County Road 3 and is not part of Stelco industrial development lands. Since the site is the farthest from the discharge body, a long land-based discharge pipe is required and would cross County Road 3
- Site B - located on the north side of New Lakeshore Road within Stelco land holdings. Site B is in close proximity to the discharge body (Lake Erie) and as such is not required to have a long land-based discharge pipe that would cross Centre Creek. A small lakeshore seasonal/residential area is located approximately 1 km to the west.

Site B was identified as the preferred site for the new LEIP WWTP.

1.2 RATIONALE FOR CLASS EA ADDENDUM

The Municipal Class EA process allows a proponent up to ten years to begin construction on the project from the time of filing the Notice of Completion. As per the MEA Municipal Class EA document (Section A.4.3), if the period of time from filing of the Notice of Completion to the proposed commencement of construction for the project exceeds ten (10) years, the proponent shall review the planning and design process to ensure that the project and the mitigating measures are still valid given the current planning context.

This review would be documented in the form of an ESR Addendum and the proponent shall issue a Notice of Filing of Addendum to all potentially affected members of the public and review agencies including all who were contacted during the original Class EA planning process. A period of 30 calendar days shall be provided for review and response by the public. The Notice shall also include the public's right to request a Part II Order within the 30-day review period.

1.3 MUNICIPAL CLASS EA AND ADDENDUM PROCESS

- There have been significant changes to the EA process since 2011
- 2019 Modernizing Ontario's Environmental Assessment Program discussion paper
- Changes to Environmental Assessment Act

1.4 REQUIREMENTS FOR AN ADDENDUM TO 2011 EA

In 2011, it was decided that Alternative 3 (site new WWTP at new location with new outfall) was the preferred wastewater treatment solution and that Site B was the preferred location for the new WWTP. Identified alternative solutions and design concepts were evaluated based on estimated long term wastewater treatment requirements. The recommended solution was based on the development of a new wastewater treatment plant (WWTP) facility that has the flexibility for future expansion should it be warranted. This also includes construction of a new Lake Erie treated effluent pipe outfall.

The preferred solution identified in 2011 Report will not change because of this Addendum. As part of the Addendum process, the Project Team has reviewed changes to the environmental setting and have updated the mitigation measures, as required to address the lapse in time since the original EA.

This report provides a review of background information compiled from agency correspondence and online database review and a description of existing conditions identified through site investigations. Based on the desktop review, agency consultation and a field assessment, this report includes the results of secondary source background information and field data collections for vegetation, wildlife, wetlands and Species at Risk (SAR) and identifies potential sensitive features and habitats and considerations when developing a preferred design. Existing conditions and associated constraints may alter the assessment based on further consultation with agencies and during the detailed design process.

2 PLANNING OVERVIEW

2.1 HALDIMAND COUNTY OFFICIAL PLAN

The Haldimand County Official Plan (office consolidation November 2019) provides the strategic input to land use, management and protection of the natural environment (HCOP 2019). The Natural Environment policies of the Official Plan outline specific policies for Provincially Significant Wetlands and Habitat of Endangered and Threatened Species and general policies for the other significant natural environmental features. Section 2. A of the Official Plan outlines the policies protecting the Natural Environment Areas, including Provincially Significant Wetlands (PSWs); coastal wetlands, provincially significant areas of natural and scientific interest (ANSIs) (both earth and life sciences); environmentally sensitive areas; Habitat of Endangered and Threatened Species; fish habitat; Carolinian Canada sites; and locally significant and unevaluated wetlands. The County's Natural Environment Areas are identified on Schedule E. 2.

The County's Official Plan Schedule A.2: Haldimand County Southwest Land Use Plan (2019) identifies that the subject site contains a former waste disposal site, the site and adjacent lands identified as major industrial and the land bordering the Lake Erie shoreline south of the subject site are classified as lakeshore hazard lands (HCOP 2019). **Appendix A**: Figure 1 shows the location of the subject site relative to the non-provincially significant wetlands and woodland within and adjacent to the site and adjacent hazard lands. Schedule H of the County's Official Plan lists the criteria for Determining 'Significance' of Woodlands. Significant Woodland occurs within the southern limits of the subject site and candidate Significant Valleyland occurs south of the subject site. These Natural Heritage Features are discussed in **Section 4**.

The subject site does not contain PSWs or Provincial ANSIs.

The Official Plan states that in general, development will not be permitted in areas identified as Core Natural Environment Areas (Core NEAs), which include PSWs, Hazard Lands and Habitat of Endangered and Threatened Species (HCOP 2019). These Core NEAs are depicted on Schedules A through D of the County's Official Plan.

Natural Environment Areas (NEAs) are areas consisting of provincially significant ANSIs (both earth and life science), environmentally sensitive areas, fish habitat, Carolinian Canada sites and locally significant and unevaluated wetlands. In general, development and site alteration may be considered in these areas only where it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions (HCOP 2019). These features are identified on Schedule E.2. of the Official Plan.

Proposed development or site alteration within or adjacent to a NEA prompts an Environmental Impact Study (EIS), "to identify and evaluate the potential impacts of proposed development and site alteration on a Natural Environment Area, its adjacent lands, and system to recommend means of preventing, minimizing or mitigating its potential impacts … Development will only be approved where an EIS has demonstrated that there will be no negative impacts on the natural features of their ecological functions" (HCOP 2019). The subject site contains two (2) non-provincially significant wetlands within the southern limit of the study area adjacent to permanent watercourses. Woodlands were also identified within the southern limits of the subject site and were situated adjacent to wetland habitat.

Lands adjacent to NEAs that are not PSWs or Habitat for Endangered and Threatened Species include those within:

a) 30 metres of fish habitat measured from the high water mark;

b) 50 metres of a significant valleyland; the edge of a significant woodland or Carolinian Canada site; all provincially significant Areas of Natural and Scientific Interest; significant wildlife habitat; significant natural corridors; and all environmentally sensitive areas as defined by the County Plan;

c) 120 metres for locally significant and unevaluated wetlands 2.0 hectares in size or greater; and,

d) 30 metres for locally significant wetlands and unevaluated wetlands less than 2.0 hectares in size.

An EIS must demonstrate that appropriate setbacks will be maintained for development on adjacent lands. The subject site contains 2 watercourses: Centre Creek and an unnamed tributary, which both drain into Lake Erie to the south. Centre Creek is a permanent, warm water creek with a varied fish community. The unnamed tributary has no data regarding thermal regime or aquatic species. The minimum vegetative buffer and setback for development is 15 metres from a warm water stream (HCOP 2019).

The adjacent lands south of New Lakeshore Road are identified as lakeshore hazard lands on Schedule A.2. Lakeshore hazard lands are discussed in Section C.2 of the plan. As per the Official Plan, development shall generally be directed away from the Regulatory Shoreline Area.

2.2 FOREST CONSERVATION BY-LAW

The County's Forest Conservation By-law (By-law 2204/20) prohibits or regulates the injury or destruction of trees within woodlands (2020).

According to the By-law, 'Woodlands' means, "land one (1) hectare or more in area with at least:

i. 1000 trees of any size, per hectare; or,

ii. 750 trees, measuring over five (5) centimetres at DBH, per hectare; or,

iii. 500 trees, measuring over twelve (12) centimetres at DBH, per hectare; or,

iv. 250 trees, measuring over twenty (20) centimetres at DBH, per hectare."

Based on the above definitions, trees within the woodland feature surrounding the south side of the subject site would be subject to this by-law under the 'woodland' definition as the total wooded area exceeds 1ha.

The study area qualifies for an exemption under Section 5.1 of the By-law. The applicable exemption is listed below:

5.1 activities or matters undertaken by a municipality or a local board of a municipality.

2.3 CONSERVATION AUTHORITIES ACT (1990) AND ONTARIO REGULATION 178/06

The wetlands associated with the two existing watercourses, which flow into Lake Erie south of the subject site are within the regulation limit of the Long Point Region Conservation Authority (LPRCA) under Ontario Regulation 178/06 – Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

The LPRCA regulation limit is associated with the non-provincially significant wetlands in the southern portion of the subject site as well as the Lake Erie shoreline south the site and south of New Lakeshore Road (**Appendix A**: Figure 2).

2.4 PROVINCIAL POLICY STATEMENT

The Provincial Policy Statement (PPS) (Ontario Ministry of Municipal Affairs and Housing (OMMAH), 2020) is a planning document that provides a framework for guiding development in the Province of Ontario. To preserve various ecological resources deemed significant in the Province, development lands must be assessed for the presence of Natural Heritage Features (NHFs) prior to construction or site alteration. Generally, NHFs within the 120 m area of influence of development must be assessed. These NHFs (listed below) are both defined and afforded protections under the PPS. Linkages between NHFs, surface water and groundwater features are also recognized and afforded similar protections under the policy. Section 2.1.2 of the PPS also requires that the diversity and connectivity of all NHFs and the long-term ecological function of natural heritage systems be maintained, restored or improved where possible.

Under the PPS (OMMAH, 2020), development or site alteration is prohibited within significant wetlands in Ecoregion 7E and in significant coastal wetlands but may be allowed adjacent to these features provided the adjacent lands have been evaluated and it has been demonstrated that there will be no negative impacts to these features or their ecological functions. Development may be permitted in or adjacent to significant woodlands and significant valleylands in Ecoregion 7E, significant wildlife habitat, and significant areas of natural and scientific interest (ANSIs), provided there will be no negative impacts to these features or their ecological function due to the proposed undertaking. In addition, development and site alteration is not permitted in fish habitat unless in accordance with provincial and federal legislation.

NHFs as defined by the PPS (OMMAH, 2020) include:

- Natural Heritage Systems;
- Fish Habitat;
- Habitats of Endangered and Threatened Species;
- Significant Areas of Natural and Scientific Interest;
- Significant Wetlands;
- Significant Coastal Wetlands;
- Significant Wildlife Habitat;
- Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River); and
- Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River).

2.5 ENDANGERED SPECIES ACT, 2007

Natural heritage field investigations to support the assimilative capacity study in the 2011 ESR were conducted in 2006, prior to the enacting of the provincial *Endangered Species Act* (ESA). Therefore, a Species at Risk (SAR) assessment was not completed at that time.

Species designated as Threatened or Endangered by the Committee on the Status of Species at Risk in Ontario (COSSARO), otherwise known as Species at Risk in Ontario (SARO), and their habitats (i.e., areas essential for breeding, rearing, feeding, hibernation and migration) are automatically afforded legal

protection under the ESA, 2007 (Government of Ontario 2007). The ESA (Subsection 9 (1), 2007) states that:

"No person shall,

a) kill, harm, harass, capture or take a living member of a species that is listed on the SARO List as an extirpated, endangered or threatened species;

b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade;

i. a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

ii. any part of a living or dead member of a species referred to in subclause (i);

iii. anything derived from a living or dead member of a species referred to in subclause (i); or,

c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii)".

Clause 10(1) (a) of the ESA (2007) states that:

"No person shall damage or destroy the habitat of a species that is listed on the SARO list as an endangered or threatened species".

Endangered and Threatened species or their habitat are potentially present within the subject site and are discussed in **Section 4.5** and **Section 4.6.6**.

2.6 MIGRATORY BIRDS CONVENTION ACT, 1994

The Migratory Birds Convention Act, (MBCA) (1994) and Migratory Birds Regulations, (MBR) (2014) protect most species of migratory birds anywhere they are found in Canada, including surrounding ocean waters, regardless of ownership. General prohibitions under the MBCA and MBR protect migratory birds, their nests and eggs and prohibit the deposit of harmful substances in waters / areas frequented by them.

The MBR includes an additional prohibition against incidental take, defined by Environment and Climate Change Canada (ECCC) as:

"The inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs."

ECCC implements policies and guidelines to protect migratory birds, their eggs and their nests. There is guidance on the ECCC website to minimize the risk of incidental take effects on migratory birds, achieve compliance with the law and maintain sustainable populations of migratory birds.

Compliance with the MBCA and MBR is best achieved through a due diligence approach, which identifies potential risk, based on a site-specific analysis in consideration of the Avoidance Guidelines and Best Management Practices information on the ECCC website.

APPLICABILITY

The MBCA and its regulations are applicable to the subject site. Migratory bird species subject to the MBCA may be present within the subject site and may use various habitats within the subject site (e.g., trees, grass and other herbaceous material). Recommended measures to reduce the possibility of a contravention of the MBCA and its regulations are provided in **Section 6**.

Vegetation removals are to be coordinated outside of the Migratory Bird Nesting Season (April 1 to August 31) and the active period for bats (e.g., April 1 to September 30). Overall clearing of trees would

be permitted between **October 1** and **March 31,** unless surveys are completed to determine the presence of Species at Risk (SAR) bats, which is discussed further below.

2.7 SPECIES AT RISK ACT, 2002

The federal Species at Risk Act (SARA 2002) provides a framework to ensure the survival of wildlife species and the protection of natural heritage in Canada. Under SARA (2002), the federal government has the responsibility for:

- wildlife on federal lands;
- aquatic species; and,
- migratory birds covered by the MBCA (1994).

Species listed under SARA (2002) are defined as SAR disappearing from Canada. For species listed as at-risk under SARA (2002) not included in the three categories above, for example any at-risk species located outside of federal lands, the provinces and territories are given the first opportunity to protect the species through provincial or territorial statutes. If the province or territory does not act, SARA (2002) has a 'safety net'. This 'safety net' allows the federal government to step in if a province or territory is failing to protect an at-risk species and/or its habitat. The SARA (2002) prohibitions apply on private lands throughout Canada only to aquatic species and species of migratory birds protected by the MBCA (1994) and listed as Endangered, Threatened, or Extirpated under Schedule 1 of SARA (2002). For other listed wildlife species, the prohibitions only apply on federal lands.

2.8 FISHERIES ACT, 1985

The federal Fisheries Act (FA 1985) regulates fishing and protects fish and the habitats they need to reproduce, grow, and survive. Amendments to the FA (1985) came into effect on August 28, 2019. At the time of investigations for the 2011 ESR by AECOM, the 2019 FA amendments were not considered. Moving forward with these amendments, the focus of the FA changed; which states:

"No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish" (Section 34.4) and "No person shall carry on any work, undertaking or activity that results in harmful alteration, disruption or destruction of fish habitat" (Section 35).

This prohibition is designed to provide a holistic approach to conserving and protecting fish and fish habitat to provide for the long-term sustainability of the resource. As such, the review of the proposed works presented in the sections below will consider implications under the FA (1985) and will recommend appropriate follow-up studies or action based on the review.

3 BACKGROUND INFORMATION

The following resources were reviewed:

- Haldimand County Official Plan (office consolidation November 2019);
- Lake Erie Industrial Park Wastewater Treatment System Municipal Class Environmental Assessment (AECOM 2011);
- Satellite imagery (Google Earth, 2021);
- NDMNRF Natural Heritage Information Centre (NHIC) database (2021);

- Land Information Ontario (LIO 2021);
- Fisheries and Oceans Canada (DFO) online aquatic SAR mapping tool (2021);
- eBird (2021);
- Ontario Breeding Bird Atlas (OBBA 2021);
- Ontario Reptile and Amphibian Atlas (ORAA 2019); and,
- iNaturalist (2021).

The background review was conducted to characterize land features, inform field investigations and identify potential environmental constraints including identifying sensitive species (SAR) and natural heritage features.

3.1 AGENCY CONSULTATION

All records of agency liaison can be found in **Appendix B**.

3.1.1 MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS

The Ministry of the Environment, Conservation and Parks (MECP) was contacted on October 22, 2021, to request available Species at Risk (SAR) records within and adjacent to the Site. A response from MECP was received on October 28, 2021. A response was received from Brianne Brothers, Management Biologist, Species at Risk Branch. Ms. Brothers recommended to consider SAR bats while conducting site investigations. SAR are further discussed in **Section 4.5**.

3.1.2 MINISTRY OF NORTHERN DEVELOPMENT, MINES, NATURAL RESOURCES AND FORESTRY

The Aylmer Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF; formerly known as the Ministry of Natural Resources and Forestry [MNRF]) was contacted on October 22, 2021, to request information concerning significant species and designated natural features within and adjacent to the Site. A same-day response was received from David Denyes, Management Biologist, Aylmer District, Vineland Field Office. Mr. Denyes provided direction to review online databases for background information, provided a copy of the wetland evaluation record for the Stelco Creek Wetland (evaluated non-provincially significant) and reiterated restricted activity timing windows to protect fish from impacts during critical life stages (i.e., for this tributary, work should be avoided during March 1 to July 1). These and additional online databases were reviewed in the process of developing this report.

3.2 TERRESTRIAL

The subject site occurs within Ecoregion 7E. Natural Heritage Areas mapping produced by NDMNRF (2021) identifies non-provincially significant wetlands toward the southern portion of the subject site and woodlands (which meet criteria for significance as described in **Section 2.1**) adjacent to two (2) watercourses, which flow into Lake Erie. Aerial photo interpretation concurs with the NHIC (NDMNRF) data regarding the presence of woodlands. No other Natural Heritage features have been recorded within 1 km of the subject site.

3.3 FISH AND AQUATIC HABITAT

Within the study site there are two existing watercourses, consisting of an unnamed tributary, and Centre Creek which flow into Lake Erie. Existing background information including topographic and aerial mapping indicate the presence but not the extent and state of these watercourses, and their associated drainage features. LIO (2021) indicates that Centre Creek is a permanent, warm water creek with a varied fish community of sunfish, shiners, and salmonids – a full list of species can be found in Table 4. The unnamed tributary within the study site has no public accessible data on the thermal regime, permanency, or fish community.

An examination of the Lake Erie shoreline was completed by AECOM in the 2011 ESR (AECOM 2011) to characterize the existing conditions. Results from the habitat/substrate survey indicate that the study area was predominately silty sand, gravel, cobble, stones, and numerous boulders on exposed bedrock. This substrate composition makes up 51% of the study area and was primarily present along the northern shoreline. Directly along the shoreline with higher proportions of sandy substrate there is moderate vegetation cover, as well as Zebra Mussels (*Dreissena polymorpha*) throughout the study area on all substrate forms. Due to the suitable habitat and varying substrate present, the shoreline has a high potential for viable fish habitat, as well as an abundance of suitable habitat along the shoreline east and west of the study area. The 2011 field investigations identified only Round Goby (*Neogobius melanostomus*) and Smallmouth Bass (*Micropterus dolomieu*) as observed species, but the potential presence of the species listed below.

Alewife (*Alosa pseudoharengus*), Brown Trout (*Salmo trutta*), Carp (*Cyprinus carpio*), Chinook Salmon (*Oncorhynchus tshawytscha*), Coho Salmon (*Oncorhynchus kisutch*), Freshwater Drum (*Aplodinotus grunniens*), Lake sturgeon (*Acipenser fulvescens*), Lake Trout (*Salvelinus namaycush*), Lake Whitefish (*Coregonus clupeaformis*), Longnose Sucker (*Catostomus catostomus*), Muskellunge (*Esox masquinongy*), Northern Pike (*Esox Lucius*), Rainbow Smelt (*Osmerus mordax*), Rainbow Trout (*Oncorhynchus mykiss*), Round Whitefish (*Prosopium cylindraceum*), Smallmouth Bass (*Micropterus dolomieu*), Walleye (*Sander vitreus*), White Sucker (*Catostomus commersonii*), and Yellow Perch (*Perca flavescens*) (AECOM, 2011).

3.4 SPECIES AT RISK AND SPECIES OF CONSERVATION CONCERN

SAR are species designated Extirpated, Endangered, or Threatened and are protected by prohibitions under the provincial ESA (2007) and the federal Species at Risk Act, 2002 (SARA). Special Concern species are considered Species of Conservation Concern (SCC) and are not subject to the prohibitions of either Act but are to receive consideration under the Significant Wildlife Habitat (SWH) provisions of the PPS. SCC also includes NHIC listed species that are provincially rare (S-Rank of S1-3), or regionally/locally rare (L-Rank).

NHIC mapping indicates a total of four (4) species SAR or SCC present within the study area: Bald Eagle (*Haliaeetus leucocephalus*), Bobolink (*Dolichonyx oryzivorus*), Wood Thrush (*Hylocichla mustelina*) and Silver Chub (*Macrhybopsis storeriana*).

Terrestrial surveys conducted in support of the 2011 ESR (AECOM 2011) noted no presence of any Endangered, Threatened or SAR species. Online database tools (listed above in **Section 3**) and agency correspondence were reviewed to determine if there are records for known SCC occurrences for the area. Known SAR that could occur within the study area include:

Fish:

- Silver Chub (Threatened)

Birds:

- Wood Thrush (Special Concern)
- Bald Eagle (Special Concern)
- Bank Swallow (*Riparia riparia)* (Threatened)
- Barn Swallow (*Hirundo rustica*) (Threatened)
- Chimney Swift (*Chaetura pelagica*) (Threatened)
- Eastern Wood-pewee (*Contopus virens)* (Special Concern)
- Bobolink (Threatened)
- Eastern Meadowlark (*Sturnella magna*) (Threatened)
- Horned Grebe (*Podiceps auratus*) (Special Concern)
- Peregrine Falcon (*Falco peregrinus*) (Special Concern)

Herpetiles:

- Eastern Foxsnake (*Pantherophis vulpinus)* (Endangered)
- Gray Ratsnake (*Pantherophis spiloides)* (last observed in 1989) (Endangered)
- Midland Painted Turtle (*Chrysemys picta marginata)* (Special Concern)
- Queensnake (*Regina septemvittata)* (last observed in 1987) (Endangered)
- Milksnake (*Lampropeltis triangulum)* (Special Concern)
- Snapping Turtle (*Chelydra serpentina*) (Special Concern)

The likelihood of impacts to SAR and their habitat on the study area was assessed and is provided in the SAR Screening Table (**Appendix C**). The assessment compares available habitat on and adjacent to the study area, to preferred habitat for individual species. Species were included in the assessment based on NHIC occurrence data listed above, species' range maps and field observations. A full list of SAR found in the region has been is provided in **Appendix C**.

Potential impacts to these species are described in **Section 5**. Mitigation measures that focus on general actions to limit impacts to SAR inadvertently entering the construction area are provided in **Section 6**.

4 EXISTING CONDITIONS

Field investigations of the subject site were conducted on October 12th and 13th, 2021 to confirm the presence and location of watercourses, NHFs and to determine general characteristics of the subject site. The field investigations included a vegetation species survey, determination of vegetation communities using the Ecological Land Classification (ELC) system (Lee et al. 1998; Lee 2008), documentation of incidental wildlife, and aquatic habitat mapping. Prior to the field investigations, satellite images of the subject site and land use and topographical maps were reviewed to identify the presence of NHFs,

available wildlife habitat and the potential for SAR and SCC. Existing conditions are shown in Figure 1 and NHFs are shown in Figure 2 (**Appendix A**). Photographs of representative features at the site are found in **Appendix F.**

4.1 PHYSIOGRAPHY AND DRAINAGE

The ground surface of the subject site is generally rolling upland primarily used for agriculture. There are two (2) SWM ponds central to the subject site. An area of lower topography is situated to the northwest of the subject site where moist conditions have facilitated the growth of swamp habitat. Two watercourses, an unnamed tributary, and Centre Creek, flow in a generally north-south direction into Lake Erie. There is a ditch along New Lakeshore Road toward the southern end of the subject site.

4.2 VEGETATION

In total, 83 plant species were recorded during WSP field surveys on the subject site. A complete list of vascular plant species for each vegetation community is provided in **Appendix E**. Of the species recorded:

- 44 (60%) are native and 29 (40%) are non-native.
- All recorded native species have a provincial ranking of S4 or S5 [apparently secure (S4) or secure (S5) in Ontario].
- No globally rare species (i.e., G-rank G1 - G3) were recorded.
- No SAR vegetation was recorded.
- In total, one (1) species recorded within the subject site is considered uncommon within the Carolinian Zone (Oldham 2017).
- In total, five (5) species are uncommon within Haldimand – Norfolk County (Oldham 2017).
- Of the 44 naturally occurring native species recorded for which CC values are provided, the CC values range from 0 to 6 (i.e., high to moderate disturbance tolerance). A CC value of >6 is considered highly conservative and only includes species that grow in vegetation communities with low levels of recent disturbance (**Table 4-1**).

Table 4-1 Regionally Significant Species, Lake Erie Industrial Park

SCIENTIFIC NAME	COMMON NAME	CAROLINIAN ZONE[1]	HALDIMAND-NORFOLK COUNTY[1]	UNIT
Cornus racemosa	Grey Dogwood		U	CUT1, MAM2-10, SWD2-2, CUP1
Erigeron annuus	Annual Fleabane		U	MAM2-10
Persicaria hydropiperoides	False Waterpepper	U	U	SWD2-2
Persicaria pensylvanica	Pennsylvania Smartweed		U	MAM2-2
Viburnum opulus ssp. *trilobum*	Highbush Cranberry		U	FOD9

[1]Oldham, Michael J. 2017. List of the Vascular Plants of Ontario's Carolinian Zone (Ecoregion 7E). Carolinian Canada and Ontario Ministry of Natural Resources and Forestry. Peterborough, ON. 132 pp.

4.2.1 VEGETATION COMMUNITIES

The following vegetation communities were identified within the study area and adjacent land:

OA – Open Aquatic

Two (2) open water features (stormwater management, or SWM, ponds) were identified central to the site.

OAGM1 – Annual Row Crops

Agricultural lands within and adjacent to the study area and included active fields of soybean.

CVC_3 – Heavy Industry

Properties within and adjacent to the study area limits that were comprised of paved / compacted land associated with the Stelco: Lake Erie Works industrial lands were classified as Heavy Industry

CUM1-1 – Dry – Moist Old Field Meadow

This vegetation type occurred to the northwest limit of the study area. The vegetation consisted of occasional Tall Goldenrod (*Solidago altissima*), Calico Aster (*Symphyotrichum lateriflorum*), Smooth Brome (*Bromus inermis*), New England Aster (*Symphyotrichum novae-angliae*), Common Teasel (*Dipsacus fullonum*), Heath Aster (*Symphyotrichum ericoides*), Annual Fleabane (*Erigeron annuus*) and Common Milkweed (*Asclepias syriaca*).

CUT1 – Mineral Cultural Thicket

This vegetation community was common within the study area. Hawthorn species (*Crataegus* sp.) frequently dominated the canopy and sub-canopy layers, with occasional Apple species (*Malus* sp). Green Ash (*Fraxinus pennsylvanica*) was noted occasionally in the sub-canopy along with Common Buckthorn (*Rhamnus cathartica*). The shrub layer contained Multi-flora Rose (*Rosa multiflora*), Red Raspberry (*Rubus idaeus*) and Black Raspberry (*Rubus occidentalis*) shrubs. In general, the ground layer was comprised of an abundance of Garlic Mustard (*Alliaria petiolata*), Herb Robert (*Geranium robertianum*), Calico Aster, Canada Goldenrod (*Solidago canadensis*) in addition to other old field meadow species and grasses.

CUP1 – Deciduous Plantation

Access to this vegetation unit south of New Lakeshore Road was not permitted; therefore, a high-level assessment was completed from the roadside. This plantation community was dominated by Crack Willow (*Salix × fragilis*) that appeared to have been planted in rows along the Lake Erie shoreline. The understorey contained Red-osier dogwood (*Cornus sericea*), Grey Dogwood (*Cornus racemosa*) and Riverbank Grape (*Vitis riparia*). The ground layer was comprised of an abundance of Reed-canary Grass (*Phalaris arundinacea*) and Common Reed (*Phragmites australis*).

MAM2-2 – Reed-canary Grass Mineral Meadow Marsh

This vegetation type was present within one (1) area of the study area to the west of the subject site and was situated along an intermittent watercourse between two (2) Mineral Cultural Thicket communities. The shrub layer was dominated by Reed-canary Grass and contained an abundance of Stinging Nettle (*Urtica dioica*) and Common Reed and occasionally Red-osier dogwood. The ground layer was dominated by Reed-canary Grass.

MAM2-10 – Forb Mineral Meadow Marsh

This vegetation type was present frequently throughout the study area and was associated with moist soils in habitats that are lower in elevation. The canopy of this habitat was limited with rare amounts of Canada Poplar (*Populus x canadensis*) and Shagbark Hickory (*Carya ovata*) with occasional Green Ash in the sub-canopy. The understorey contained occasional Red-osier and Grey Dogwoods, Red Raspberry, Common Buckthorn and Guelder-rose (*Viburnum opulus*). The ground layer vegetation consisted of Dry – Moist Old Field Meadow species.

MAMM1-12 – Common Reed Graminoid Mineral Meadow Marsh

This vegetation type occurred within the study area as small inclusions in disturbed habitats such as wet ditches adjacent to agricultural fields. This type of meadow marsh was dominated by invasive Common Reed with limited associate species.

MAS2-1 – Cattail Mineral Shallow Marsh

This vegetation type occurred in one (1) location south of the study area along the New Lakeshore Road right-of-way (ROW) within the non-provincially significant wetland fed by the lake. The dominant vegetation consisted of Cattail species (*Typha* sp.).

SWD – Deciduous Swamp

This unit existed southwest of the study area, which was not accessible outside of the New Lakeshore Road ROW. The NDMNRF Natural Heritage Areas mapping shows the community is classified as non-provincially significant (NHIC 2021). Vegetation that could be observed from the road ROW included: Silver Maple (*Acer saccharinum*) and Green Ash in the canopy with Green Ash in the sub-canopy and shrub layers. Occasional Common Buckthorn, Hawthorn species, Red-osier Dogwood and Riverbank Grape were also noted in the shrub layer. The ground layer was comprised of Shallow Marsh species.

SWD2-2 – Green Ash Mineral Deciduous Swamp

One (1) SWD2-2 unit existed at the north side of the study area within a wet depression associated with the western SWM pond. The canopy and sub-canopy in this unit were dominated by Green Ash and several Green Ash standing snags. The Green Ash trees within this unit were heavily impacted by Emerald Ash Borer (EAB), *Agrilus planipennis* (Fairmaire). EAB impacts are evidenced by ‘D’ shaped exit holes in bark, suckering at the base, water sprouting up trunk, woodpecker damage from woodpeckers eating the larvae and deadwood in the crown. Frequent amounts of Green Ash were noted in the understorey with occasional Red-osier and Grey Dogwoods and Common Buckthorn. The ground layer was comprised of frequent Reed-canary Grass and Rice Cutgrass (*Leersia oryzoides*).

FOD7-4 – Fresh – Moist Black Walnut Lowland Deciduous Forest

This deciduous forest type was encountered in one (1) location toward the south of the study area north of New Lakeshore Road and is mapped as a non-provincially significant wetland on the NDMNRF Natural Heritage Areas mapping (NHIC 2021). This community was situated on lands higher in elevation than the surrounding Meadow Marsh and Shallow Marsh units and its ground layer was comprised of upland species. In this community, Black Walnut (*Juglans nigra*) dominated the canopy and sub-canopy, with occasional Black Locust (*Robinia pseudoacacia*) in the canopy and sub-canopy. The understorey layer contained occasional Multiflora Rose, Hawthorn species and Black Raspberry. The ground layer contained a mix of herbaceous species including frequent amounts of Virginia Wild Rye (*Elymus virginicus*), Canada Goldenrod, Tall Goldenrod, Garlic Mustard and occasional Avens species (*Geum* sp.), Bedstraw species (*Galium* sp.) and Smooth Brome.

FOD9 – Fresh – Moist Oak – Maple – Hickory Deciduous Forest

This vegetation unit type was observed in one (1) location toward the east of the study area adjacent to Stelco lands. This community represents a transitional zone between wet and drier habitats. This unit contained Red Oak (*Quercus rubra*), which dominated the canopy and sub-canopy and occasional Shagbark Hickory in the canopy and sub-canopy. The understorey frequently contained Red Oak and Hawthorn species along with occasional Multiflora Rose, White Ash (*Fraxinus americana*), Common Privet (*Ligustrum vulgare*) and Blackberry (*Rubus allegheniensis*). The ground layer contained an abundance of Tall Goldenrod and a frequent amount of Avens species along with occasional White Ash saplings, Calico Aster and Common Burdock (*Arctium minus*).

4.3 WILDLIFE

Incidental wildlife observations were documented during the October 12, 2021, field investigation. Visual observations of mammals and / or mammal evidence at the subject site included:

- White-tailed Deer tracks (*Odocoileus virginianus*);
- Canine species tracks;
- Eastern Grey Squirrel (*Sciurus carolinensis*); and,
- Raccoon (*Procyon lotor*) scat and tracks,
- Visual and / or vocal observations of birds included:
- Willow Flycatcher (*Empidonax traillii*);
- American Goldfinch (*Spinus tristis*);
- Blue Jay (*Cyanocitta cristata*);
- Canada Goose (*Branta canadensis*);
- Red-winged Blackbird (*Agelaius phoeniceus*);
- Turkey Vulture (*Cathartes aura*);
- Song Sparrow (*Melospiza melodia*);
- Common Merganser (*Mergus merganser*);
- Mourning Dove (*Zenaida macroura*);
- Wild Turkey tracks (*Meleagris gallopavo*);

- Great-Blue Heron (*Ardea herodias*); and,
- Gray Catbird (*Dumetella carolinensis*).

Observations of amphibians on the subject site included:

- Gray Tree Frog (*Dryophytes versicolor*) vocalizations;
- Chorus Frog (*Pseudacris maculata*) vocalizations; and,
- Northern Leopard Frog (*Lithobates pipiens*) observations within wetland habitats on the subject site.

A Midland Painted Turtle (*Chrysemys picta*) was observed adjacent to the New Lakeshore Road gravel shoulder. Reptilian and amphibian road mortalities were noted south of the subject site along New Lakeshore Road including Dekay's Brownsnake (*Storeria dekayi*) and frog species.

Common mammals are also likely to use or pass through the subject area include:

- Eastern Chipmunk (*Tamias striatus*);
- Red Squirrel (*Tamiasciurus hudsonicus*);
- Coyote (*Canis latrans*);
- Eastern Cottontail (*Sylvilagus floridanus*);
- Eastern Gray Squirrel (*Sciurus carolinensis*);
- Groundhog (*Marmota monax*);
- Meadow Vole (*Microtus pennsylvanicus*);
- Porcupine (*Erithizon dorsatum*);
- Red Fox (*Vulpes vulpes*);
- Striped Skunk (*Mephitis mephitis*); and,
- Virginia Opossum (*Didelphis virginiana*).

SCC Monarch Butterfly (*Danaus plexippus*) has potential to occur within the subject site. Common Milkweed was noted within the Dry – Moist Old Field Meadow community. Milkweed is the host plant for Monarch Butterfly since it is required as a food source for caterpillar development; therefore, its presence would indicate breeding potential for this SCC butterfly

4.4 FISH AND AQUATIC HABITAT

Aquatic habitat assessments were undertaken to identify and characterize the existing watercourses, drainage, and tributary features present within the study area. The study site encompasses two primary watercourses, watercourse 1 - a tributary to Lake Erie, and watercourse 2 also identified as Centre Creek. Field investigations of the project site were completed on October 13, 2021.

No additional work to re-characterize Lake Erie was completed as part of 2021 field investigations. It is expected that the detailed conditions described in the original ESR (AECOM 2011) are consistent with current conditions.

WATERCOURSE 1

NHIC mapping (NHIC 2021) indicates that watercourse 1 is a tributary which crosses through the study site before draining into Lake Erie (**Appendix A:** Figure 1). The watercourse is mapped entering the site at the north-western limits via a pool of anthropogenic origin, and passing through primarily cropped agricultural lands, before ending within naturalized wetland and forest habitat. The key inputs to this watercourse were overland drainage identified through visible drainage pathways, and groundwater indicated by iron staining, visible sheen, and watercress (*Nasturtium officinale*). Watercourse 1 morphology was comprised of predominately flats with intermixed pools and consisted of mostly clay substrate with some sand, silt, and gravel. While watercourse 1 passed through cropped agricultural land, there was little to no riparian vegetation, with shallow banks and flow. Within the naturalized morphology which began 150 m downstream of the watercourse origin there were identifiable meanders, erosion scars, as well as instream and overhanging vegetation. The watercourse became undefined within its southern half before reforming in a forested thicket, where it drained east to a culvert crossing at New Lakeshore Road and then flowed south toward Lake Erie. The culvert consisted of a Corrugated Steel Pipe (CSP) 1.15 m in diameter.

Despite not having property access to lands south of New Lakeshore Road to confirm its accuracy, LIO mapping indicates the presence of a watercourse between New Lakeshore Road and Lake Erie; however, aerial photo interpretation suggests undefined channel morphology. The frequent loss of channel definition suggests that the watercourse is intermittent or ephemeral and does not support fish habitat (**Appendix A**: Figure 2).

Table 4-2 Watercourse 1 Morphology

	FLATS	POOL
% of Assessed Reach	95%	5%
Wetted Depth (m)	0.05	0.3
Bankfull Depth (m)	0.35	0.45
Wetted Width (m)	0.6	0.95
Bankfull Width (m)	1.1	1.05
Substrates	80% Clay, 10% Silt, 5% Gravel, 5% Sand	70% Clay, 20% Silt, 5% Cobble, 5% Gravel

WATERCOURSE 2

Watercourse 2 is shown as Centre Creek on available mapping (NHIC 2021) and enters the study site from the northeast corner, flowing south and crossing New Lakeshore Road to Lake Erie via a box culvert. During field investigations, the downstream portion of the watercourse was comprised primarily of flats with occasional runs present.

Within the northern portion of the study site Centre Creek consisted of 100% flats running directly south in a straight line along the Stelco property fence line. The lack of meander and consistent habitat suggest that the watercourse has been historically straightened. The watercourse flowed through a forested valley with 80% overhead cover, moderate overhanging vegetation and a substrate composition of sand, silt, and clay. Two intermittent tributaries converge with Centre Creek at the north end of the study area. These tributaries are categorized as intermittent, due to being primarily dry with pools of standing water as well as a mixture of riparian and terrestrial vegetation was present within the channel. The tributaries, while intermittent indicate a high flow volume as seen through deep scoured channels, and large erosion scars along the channel banks. These channels also double as drainage avenues from the surrounding agricultural crops.

Approximately 100 m upstream of the New Lakeshore Road crossing Centre Creek morphology changes to a mixture of riffle, run, and flat habitat, with substrates comprised of bedrock, cobble, gravel, sand, and clay. The channel was approximately 3.5 m in width and 0.3 m in depth during the time of field investigation. Approximately 40 m upstream of the New Lakeshore Road crossing is a secondary input to the watercourse, via a CSP outflow from the Steel plant property. The CSP is located on a downhill and exited with force creating a fast riffle/run flow impacting the morphology directly downstream. Rip rap and gabion structures have been installed along the banks which reduce the risk of erosion at this location.

Centre Creek crosses New Lake Shore Road via a box culvert of 1.9 m in height and 3.2 m in width. On the south side of New Lake Shore Road (i.e., downstream at the culvert outlet) there is a potential seasonal fish barrier present consisting of a perch of approximately 0.5 m in height, though fish were still observed upstream of the culvert during the time of field investigation.

Centre Creek is a permanent warm water watercourse with direct fish habitat as indicated by existing fish community data (LIO, 2019) (**Appendix A**: Figure 2).

Table 4-3 Watercourse 2 – Create Creek Morphology

	FLATS	RUN
% of Assessed Reach	70%	30%
Wetted Depth (m)	0.2	0.4
Bankfull Depth (m)	3.9	0.7
Wetted Width (m)	3.4	3.65
Bankfull Width (m)	5.4	4.5
Substrates	90% Bed Rock, 5% Cobble, 5% Sand	30% Clay, 25% Cobble, 25% Gravel, 20% Sand

Fish presence and community assessments were not completed during the October 13, 2021, field investigation, though visual observations of fish presence were made within Watercourse 2 – Centre Creek. Fish community composition has been supplemented by previous records found through LIO and referenced in Table 4 (LIO, 2019). Noted through NHIC mapping is the presence of an aquatic SAR within the study area but not within the subject lands: Silver Chub. Restricted activity timing windows must be considered for spring spawning species such as Largemouth Bass (*Micropterus salmoides*) and Rainbow Trout (*Oncorhynchus mykiss)*, when no in water works are permitted from March 1st until July 1st, as indicated by NDMNRF (2021) This should be confirmed with DFO and/or LPRCA during the detailed design process.

Table 4-4 Fish Species Present in Centre Creek (LIO 2021)

FISH SPECIES	SCIENTIFIC NAME
Brook Silverside	*Labidesthes sicculus*
Brook Stickleback	*Culaea inconstans*
Brown Bullhead	*Ameiurus nebulosus*
Central Mudminnow	*Umbra limi*
Coho Salmon	*Oncorhynchus kisutch*
Common Carp	*Cyprinus carpio*
Emerald Shiner	*Notropis atherinoides*

Gizzard Shad	*Dorosoma cepedianum*
Golden Shiner	*Notemigonus crysoleucas*
Largemouth Bass	*Micropterus salmoides*
Pumpkinseed	*Lepomis gibbosus*
Rainbow Trout	*Oncorhynchus mykiss*
Rock Bass	*Ambloplites rupestris*
Round Goby	*Neogobius melanostomus*
Spottail Shiner	*Notropis hudsonius*
White Bass	*Morone chrysops*
White Sucker	*Catostomus commersonii*

4.5 SPECIES AT RISK AND SPECIES OF CONSERVATION CONCERN

SAR are defined here as species that are "designated" by the COSEWIC and / or listed under the SARA Schedule 1 and species "designated" by the Committee on the Status of Species at Risk in Ontario (COSSARO), including those Endangered and Threatened species listed and regulated under Ontario's ESA (2007).

A SAR screening exercise was completed to identify SAR that have potential to occur on the subject site, in order to identify the need for additional targeted SAR surveys, and to inform mitigation, and / or ESA requirements. This screening exercise involved compiling a list of potential SAR for the property based on a review of the background data provided by the NDMNRF and MECP as well as the NHIC database, Ontario Breeding Bird Atlas, eBird and Ontario Reptile and Amphibian Atlas databases. In summary, there were 20 potential SAR identified through agency consultation and review of background sources for the property and general area. The habitat potential of *None*, *Low*, *Moderate* or *High*, was assigned to each species and represents a conservative ranking based on field observations and a broad-scale review of habitat types identified using satellite imagery (Google Earth, 2021).

These 20 potential SAR were screened in **Appendix C** for likelihood of presence and likelihood of impact from the project works. Ten (10) of these species were deemed to have none, or low potential to occur within the project limits based on extremely limited and / or well-documented species range, or the absence of suitable habitat conditions and are not discussed further in this document. For details on all species identified in the background review refer to **Appendix C**. The remaining 10 species are discussed below.

4.5.1 POTENTIAL SPECIES AT RISK

Ten (10) SAR and SCC have moderate to high likelihood to occur within or adjacent to the subject site:

- **Bobolink** (*Dolichonyx oryzivorus*) (Threatened, COSEWIC and COSSARO): There is moderate potential for this species to occur within the subject site. The Dry – Moist Old Field Meadow and Forb Mineral Meadow Marsh habitat present on and adjacent to the subject site provides potentially suitable breeding habitat for this species.
- **Eastern Meadowlark** (*Sturnella magna*) (Threatened, COSEWIC and COSSARO): There is moderate potential for this species to occur within the subject site. The Dry – Moist Old Field

Meadow and Forb Mineral Meadow Marsh habitat present on and adjacent to the subject site provides potentially suitable breeding habitat for this species.

- **Eastern Foxsnake (Carolinian and Great Lakes/St.Lawrence)** (*Pantherophis gloydi*) (Endangered, COSEWIC and COSSARO): There is moderate potential for this species to occur within the subject site. Hedgerows adjacent to farm fields and old field and marsh habitat adjacent to watercourses may provide suitable habitat on the subject site.
- **Gray Ratsnake (Carolinian)** (*Pantherophis spiloides*) (Endangered, COSEWIC and COSSARO): There is moderate potential for this species to occur within the subject site. Forested habitat adjacent to farm fields and old field and marsh habitat may provide suitable habitat on the subject site.
- **SAR bats** Little Brown Bat (*Myotis lucifugus*), Eastern Small-footed Bat (*Myotis leibii*) and Northern Myotis (*Myotis septentrionalis*) (Endangered, COSEWIC and COSSARO): These species have moderate potential within the forested habitats, both within and adjacent to the subject site. Suitable maternity roost trees (seven [7] cavity trees) were observed within the study area. The surrounding landscape is dominated by industrial land-use and agriculture, with availability of suitable bat foraging habitats provided by adjacent treed riparian corridor and the SWM ponds.
- **Butternut** (*Juglans cinerea*) (Endangered, COSEWIC and COSSARO): There is moderate potential for this species to occur within the subject site. The lands to the south of the subject site supports forested wetland habitat with moist soils. Similar habitat is likely available in the forested habitat adjacent to the Lake Erie shoreline south of the study area.
- **Snapping Turtle** (*Chelydra serpentina*) (Special Concern, COSEWIC and COSSARO): There is moderate potential for this species to occur within the subject site. Riverine and wetland habitat within the subject site may provide suitable nesting habitat for Snapping Turtle.
- **Monarch** (*Danaus plexippus*) (Special Concern, COSEWIC and COSSARO): There is high potential for this species to occur within the subject site. Vegetation cover on and adjacent to the subject site provide potentially suitable habitat for this species. The larval host plant Common Milkweed (*Asclepias syriaca*) is present on the subject site.

The ESA protects Threatened and Endangered species, as well as their habitats. Habitats for species of Special Concern are granted protection as SWH, specifically *Special Concern and Rare Wildlife Species*, refer to **Section 4.6.4**.

See **Section 6** for recommended mitigation measures and next steps regarding SAR.

4.6 ASSESSMENT OF SIGNIFICANCE

Based on the background review, several designated features were determined to be present within or adjacent to the subject site. A preliminary impact assessment is provided in **Section 5** and mitigation recommendations for these features are provided in **Section 6**.

NHFs within, or adjacent to the subject site included significant woodlands, SWH, fish habitat, habitat of Endangered or Threatened species, in addition to key hydrological features and hazard lands.

4.6.1 SIGNIFICANT WOODLANDS

The criteria for Significant Woodlands for lands outside of settlement areas is outlined in Schedule H of the HCOP. In order to be considered significant, woodlands must meet two or more criteria in Schedule H. The woodlands identified on-site meet three (3) of the required criteria:

1. Size: The continuous woodland is greater than 2 ha. Woodland areas are considered to be generally continuous even if intersected by standard roads.
2. Connectivity: The woodlands are located within 50 metres of a Natural Environment Area: Lakeshore Hazard Lands.
3. Proximity to Water: The woodlands are located within 30 metres of hydrological features: Centre Creek and an unnamed tributary.

Therefore, the woodlands situated toward the southern limit of the subject site are considered significant. The Significant Woodland extends southwest and southeast of the subject site, adjacent to the Lake Erie shoreline.

4.6.2 SIGNIFICANT WETLANDS

Mapping from the NDMNRF (NHIC 2019) and the County (2016) do not identify the wetlands on the site as significant. The wetlands on the subject site are shown as non-provincially significant on NHIC mapping (2019). A wetland evaluation conducted in 2007 by the NDMNRF Aylmer District concluded that the wetlands are non-provincially significant **(Appendix B).** Key hydrological features are discussed in **Section 4.6.7.**

4.6.3 SIGNIFICANT VALLEYLAND

Lakeshore Hazard Lands associated with the Lake Erie shoreline occur south of the subject site. Available mapping (HCOP 2009, Schedule E.2: Haldimand County Southwest Natural Environment Areas) does not identify the feature as Significant Valleyland; however, given the feature is associated with a Lakeshore Hazard Lands (see **Section 4.6.8**), other natural areas (Significant Woodland), and has a wide floodplain, it is likely to satisfy many of the criteria standards for Significance (MNRF, 2010). For the purpose of this assessment, this feature is considered a *Candidate* Significant Valleyland.

4.6.4 SIGNIFICANT WILDLIFE HABITAT

In accordance with the Significant Wildlife Habitat Technical Guide (OMNR 2000) and Ecoregion Criteria Schedules for Ecoregion 7E (MNRF, 2015), candidate SWH was identified within or adjacent to the subject site.

SWH is broadly categorized as seasonal concentration areas (e.g., conifer forests for deer wintering), rare vegetation communities or specialized habitats for wildlife, habitats of species of conservation concern (excluding the habitats of Endangered and Threatened species), and animal movement corridors. Potential SWH were screened in **Appendix D** for likelihood of presence and potential for impact from the project works. For details on all SWH identified, refer to **Appendix D.** Due to the timing of the field assessment, seasonally appropriate surveys (i.e., breeding bird survey, amphibian survey, multi-season ELC) were not undertaken to confirm the absence or presence of SWH. The following 20 SWH types are considered *candidate* or unconfirmed, and of these, 19 (as denoted with the asterisk) may occur within the subject site.

Seasonal Concentration Areas

- Candidate (unconfirmed) Waterfowl Stopover and Staging Areas (Terrestrial)*: This habitat is important to migrating waterfowl and includes fields with sheet water during spring (mid-March to May). Suitable candidate habitat occurs within the agricultural fields on the subject site; however, further surveys would be required to determine if the habitat is 'confirmed'.
- Candidate (unconfirmed) Waterfowl Stopover and Staging Areas (Aquatic)*: This habitat is important for local and migrant waterfowl populations during the spring and / or fall migrations. Candidate habitat is present within SWD2-2 habitat on the subject site. MAS2-1 habitat is southeast of the subject site and is within the study area. Lake Erie provides habitat south of the study area. To confirm the presence of SWH, aggregations of 100 or more listed species for 7 days, results in > 700 waterfowl use days. Areas with annual staging of ruddy ducks, canvasbacks, and redheads are considered SWH. Further surveys are recommended to confirm the absence/presence of this habitat type.
- Candidate (unconfirmed) Shorebird Migratory Stopover Area*: Suitable candidate habitat is present within MAM2-2 and MAM2-10 habitat on the subject site. Known / regularly used high quality shorebird migratory stopover areas may be provided by the Lake Erie shoreline south of the study area. SWH is confirmed by the presence of three (3) or more listed species and > 1000 shorebird use days during the spring or fall migration period. Further surveys are recommended to confirm the absence/presence of this habitat type.
- Candidate (unconfirmed) Raptor Wintering Area*: Candidate habitat for Hawks/Owls is present on the subject site within FOD9, FOD7-4 and CUT1 communities. Candidate habitat for Bald Eagle is present on the subject site within FOD9, FOD7-4 communities. Further surveys are recommended to confirm the absence/presence of this habitat type.
- Candidate (unconfirmed) Bat Maternity Colony*: Bat maternity colonies are typically located in mature deciduous or mixed forest stands of >10/ha, where trees with large diameter (>25 cm DBH) are present. Given the presence of forested Ecosites FOD9, FOD7-4 and SWD2-2, bat maternity colony SWH may be present within the forest habitat within and adjacent to the subject site. Further surveys (i.e., snag density surveys) would be required to determine if the habitat is considered 'candidate' habitat as per the standardized assessment process completed during leaf-off conditions. If the snag threshold is met, further assessment (i.e., acoustic or exit surveys) may be required to determine if the treed areas provide 'confirmed' habitat (i.e., use by >10 Big Brown [*Eptesicus fuscus*] or >5 Silver-haired bats [*Lasionycteris noctivagans*]).
- Candidate (unconfirmed) Turtle Wintering Areas*: Wintering areas must have water that is deep enough not to freeze and must have soft mud substrates. They must be permanent water bodies, large wetlands, and bogs or fens with adequate dissolved oxygen with the exception of artificial ponds such as sewage lagoons or storm-water ponds. Candidate habitat is present within the subject site and may be present south of the subject site within the wetland habitat associated with Centre Creek and an unnamed tributary. Following agency consultation, further assessment may be necessary to determine status.
- Candidate (unconfirmed) Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs)*: Suitable candidate habitat is present within SWD2-2 habitat on the subject site. Further surveys are recommended to confirm the absence/presence of this habitat type if proposed works are likely to impact the feature. Surveys can be conducted concurrent with breeding bird surveys.
- Candidate (unconfirmed) Wildlife Concentration Area: Mixed Wader Nesting Colony* was identified within the vicinity of the study area on NDMNRF mapping (NHIC 2019). This SWH type is confirmed by the presence of two (2) or more active nests of Great Blue Heron. Further

surveys are recommended to confirm the absence/presence of this habitat type if proposed works are likely to impact the feature.

- Candidate (unconfirmed) Migratory Butterfly Stopover Areas*: This SWH is biologically important for butterfly species that migrate south for the winter. Suitable candidate habitat is present since the subject site is within 5 km from Lake Erie and contains CUM1-1, CUT1 and FOD9 communities. The larval host plant for Monarch, Common Milkweed, was noted across the subject site. Surveys to determine if Monarch is present should be completed and can occur concurrently with other surveys.
- Candidate (unconfirmed) Landbird Migratory Stopover Areas*: Woodlots >5 ha in size and within 5 km of Lake Erie and Lake Ontario and containing a variety of forest, grassland and wetland complexes are considered SWH. Forested communities on the subject site FOD9 and SWD2-2 provide candidate SWH; however, the forested Lake Erie shoreline south of New Lakeshore Road within the study area likely provides more suitable SWH. Further surveys are recommended to confirm the absence/presence of this habitat type.

Rare Vegetation Communities

- Candidate (unconfirmed) Other Rare Vegetation Communities*: These habitats often contain rare species which depend on the habitat for survival. These communities may include beaches, fens, forest, marsh, barrens, dunes and swamps. Based on the high-level fall ELC work, a FOD7-4 (S2S3) community occurs within the subject site, a multi-season ELC assessment should be conducted to refine the unit code.

Specialized Habitats of Wildlife considered SWH

- Candidate (unconfirmed) Waterfowl Nesting Area*: This habitat is important to local waterfowl populations. A waterfowl nesting area includes 120 m from a wetland (> 0.5 ha) or a wetland (>0.5 ha) and any small wetlands (0.5 ha) 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. They require upland areas that are at least 120 m wide to protect from predators. Some waterfowl require large diameter trees (>40 cm dbh) in woodlands for cavity nest sites. Candidate wetland ecosites were identified; however, further surveys would be required to determine if the habitat is 'confirmed'. If proposed works are likely to affect the area, further surveys should be completed to refine the status.
- Candidate (unconfirmed) Bald Eagle and Osprey Nesting*: Foraging and Perching Habitat: Bald Eagle and Osprey 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 of a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. This habitat is confirmed by one or more active Osprey or Bald Eagle nests in an area. Candidate habitat is present within and adjacent to the subject site. Forests or swamps adjacent to riparian areas were identified. Further surveys would be required to determine if the habitat is 'confirmed'.
- Candidate (unconfirmed) Turtle Nesting Areas: These sites must be close to water and away from roads and sites less prone to loss of eggs by predation and must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. SWH is confirmed by the presence of five (5) or more nesting Midland Painted Turtles, or one (1) or more Northern Map Turtle or Snapping Turtle nesting. Candidate or confirmed SWH is unlikely to occur within the subject site, but suitable nesting habitat may be present within the MAS2-1 habitat south of the subject site within the study area. Further surveys are recommended to confirm the absence/presence of this habitat type.

- Candidate (unconfirmed) Amphibian Breeding Habitat (Woodland)*: These habitats are important to amphibian biodiversity. The presence of a wetland, pond or woodland pool (including vernal pools) >500m^2 (about 25m 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 used as breeding habitat. Candidate habitat may be present within the woodland habitat within the subject site: FOD9 and SWD2-2. To confirm SWH, the 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 must be observed. Further surveys are recommended to confirm the absence/presence of this habitat type.
- Candidate (unconfirmed) Amphibian Breeding Habitat (Wetland)*: Wetlands supporting amphibian breeding are rare in Central Ontario. Wetlands >500m^2 (about 25m diameter) supporting high species diversity are significant; some small or ephemeral habitats may not be identified on NDMNRF mapping and could be important amphibian breeding habitats. Candidate habitat may be present within the wetland habitat within the subject site: MAM2-2, MAM2-10, SWD2-2 and within the wetland habitat within the study area: MAM2-10, MAS2-1 and SWD. To confirm SWH, the 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 must be observed. Wetland habitat with confirmed breeding Bullfrogs is also classified as significant. Further surveys are recommended to confirm the absence/presence of this habitat type.
- Candidate (unconfirmed) Marsh Breeding Bird Habitat*: For SWH, all wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. Candidate habitat may be present. MAM2-2 and MAM2-10 ecotypes were identified on the subject site. To confirm this SWH, the presence of five (5) or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species must be noted. Further surveys are recommended to confirm the absence/presence of this habitat type.
- Candidate (unconfirmed) Shrub/Early Successional Bird Breeding Habitat*: This SWH type is comprised of large field areas succeeding to shrub and thicket habitats>10h in size. Candidate habitat may be provided by the CUT1 community within the subject site. This SWH is considered to be confirmed if the presence of nesting or breeding of one (1) of the indicator species and at least two (2) of the common species is observed. Further surveys are recommended to confirm the absence/presence of this habitat type.
- Candidate (unconfirmed) Terrestrial Crayfish*: This species can be found in wet meadows and edges of shallow marshes. There is no minimum size to be considered for SWH. Candidate habitat is present within wet meadows and shallow marshes MAM2-2 and MAM2-10, and within SWD2-2 within the subject site. Candidate habitat may be present within the study area within the MAM2-10, MAS2-1 and SWD communities. Confirmed SWH is indicated by the presence of one (1) or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or terrestrial site. Further surveys are recommended to confirm the absence/presence of this habitat type.

Habitat for Species of Conservation Concern

- Candidate (unconfirmed) Special Concern and Rare Wildlife Species*: Candidate habitat may be present on the subject site. Further surveys are recommended to confirm the absence/presence of this SWH if the proposed works are anticipated to impact the species or their habitat.

Animal Movement Corridors

- Candidate (unconfirmed) Amphibian Movement Corridors*: This SWH is important for amphibians moving from their terrestrial habitat to breeding habitat. To confirm this SWH, field surveys must be conducted at the time of year when species are expected to be migrating or entering breeding sites. Suitable candidate habitat may be present since Amphibian Breeding Habitat – Wetland SWH has potential to be present. Further surveys should be conducted if the project is likely to impact this candidate habitat.

4.6.5 FISH HABITAT

The aquatic habitat within the study site does not meet the criteria for significance presented in the SWH Criteria Schedules for Ecoregion 7E. Background information provided by LIO, DFO SAR Mapping and NHIC do not identify any significant features or habitat within the watercourses. Previous NHIC mapping noted the presence of Silver Chub within the site limits, but the inland and morphological conditions of Centre Creek are not consistent with Silver Chub habitat preferences, therefore Silver Chub are not anticipated to be present within the study site. Field investigations did not reveal the presence of significant aquatic features within watercourse 1 or 2.

4.6.6 HABITAT OF ENDANGERED AND THREATENED SPECIES

The likelihood of Endangered and Threatened species and habitat present on or adjacent to the subject site was determined using field observations and a SAR screening table (**Appendix C**). Eight (8) Endangered or Threatened species were assessed to have a moderate likelihood of being present on or within the vicinity of the subject site. In addition, two (2) species listed as Special Concern on the Species at Risk in Ontario (SARO) List also have moderate to high potential to occur in or adjacent to the subject site. For more detailed information regarding SAR, refer to **Section 4.5**.

4.6.7 KEY HYDROLOGICAL FEATURES

The study site encompasses two primary watercourses, watercourse 1 - a tributary to Lake Erie, and watercourse 2 also identified as Centre Creek. Centre Creek is a permanent warm water creek with a varied fish community. The unnamed tributary within the study site has no public accessible data on the thermal regime, permanency, or fish community.

Wetland habitat toward the south limits of the subject site was evaluated as non-provincially significant through a wetland evaluation conducted in 2007 by the NDMNRF Aylmer District. Six (6) wetland units have been identified within and adjacent to the subject site, including four (4) that are situated within the subject site limits.

4.6.8 NATURAL HAZARDS

The Lakeshore Hazard Lands designation within the HCOP (2019) is applied to areas along the Lake Erie shoreline that are subject to fluctuating water levels, seiche episodes, wave action and storms. Schedule E.2 of the HCOP maps the Lakeshore Hazard Lands. The Lakeshore Hazard Land designation reflects the Regulatory Shoreline Area, which is established by the conservation authority (LPRCA).

The proposed LEIP Wastewater Treatment System is to be located north of Lakeshore Hazard Lands along the Lake Erie shoreline. As per Section 2. C. 2) of t he HCOP, “Development will generally be directed outside the Regulatory Shoreline Area.”

5 UPDATED ASSESSMENT OF CONSTRAINTS

The assessment of constraints will document current environmental constraints determined using background data current as of the writing of this report as well as 2021 field investigations and will be compared to natural environment information documented for the 2011 ESR (AECOM 2011). Proposed works will be considered from a high-level as detailed designs have not been completed.

5.1 PROPOSED WORKS

The LEIP Wastewater Treatment System will be located on Site B, which is a 40 ha parcel with a 150 m buffer located on the north side of New Lakeshore Road within Stelco Property and bordered to the south by Lake Erie. As described above in Section 1, the subject site contains agricultural and industrial lands operated by Stelco with one (1) stormwater management lagoon and contains two (2) permanent watercourses and naturalized vegetated areas. The subject site is currently zoned as industrial land and has surrounding developable land for expansion.

While exact details of the proposed works have not been decided upon, the site will involve the following components as indicated in the AECOM 2011 report.

- The decommissioning of the existing Stelco wastewater treatment lagoons and an accompanying Environmental Site Assessment (Phase I and II) for environmental concerns and contamination impacts.
- The implementation of the following structures within Site B property: Influent Pumping Station, Leachate and Septage Storage, Headworks, Primary Clarifiers, Aeration Tanks, Secondary Clarifiers, UV Disinfection, Effluent Chamber, Primary digesters, Secondary Digesters, and Thickening/ Dewatering structure.
- Creation of a solid handling facility for long-term biosolids and sludge storage.
- Construction of an outfall pipe into Lake Erie approximately 2000 m from the shoreline at a depth of over 9.2 m, with the outfall lying on or tunnelled underneath the lakebed

Site B was chosen as the preferred site for the new LEIP Wastewater Treatment Plant due to the following:

- Lowest construction and operational costs;
- Maximized flexibility to service future development;
- Shortest land based effluent pipe;
- Level topography for the site, and a downward slope toward outfall;
- Substantially less woodlot removal than Site A;
- Effluent pipe does not cross Centre Creek;
- Impacts from construction and operation are not considered significant (given the industrial nature of adjacent land uses) and can be addressed following standard mitigation measures and detailed design; and,

5.2 CONSTRAINTS

This section reviews potential impacts or condition changes to natural heritage features within or adjacent to the subject site based on typical construction activities (e.g., vegetation clearing and grading). Direct and indirect impacts to designated natural heritage features, vegetation, wildlife, SAR, and aquatic habitat are reviewed in terms of immediate potential impacts and residual effects. For recommended mitigation measures, refer to **Section 6.**

5.2.1 VEGETATION

Development of the proposed LEIP Wastewater Treatment System will result in direct and indirect impacts to existing forest and wetland communities located within and adjacent to the subject site. Potential direct and indirect, long- and short-term impacts associated with Natural Heritage Features and ecological functions are discussed in detail below.

5.2.1.1 *SIGNIFICANT WOODLAND*

The wooded areas on and adjacent to the subject site are part of a larger Significant Woodland. Potential impacts to the Significant Woodland include vegetation removals, the removal of the existing forest edge and the creation of a new edge, the removal of a small number of locally rare species, and indirect impacts to interior forest habitat.

With most construction activities, there is potential for indirect impacts to adjacent retained vegetation features during and following construction, including vegetation clearing / damage beyond the site, and spills of contaminants, fuels and other materials that may reach natural areas. Mitigation measures for these indirect impacts are outlined in **Section 6**.

5.2.1.2 *EVALUATED WETLANDS*

The non-provincially significant evaluated wetland within and adjacent to the subject site is identified as a 'Regulated Area' under the LPRCA interactive mapping (2020). If a minimum setback of 30 m is applied, no direct impacts to the wetland are anticipated to occur.

Anticipated indirect impacts to the wetlands include the removal of a portion of the naturally occurring vegetated buffers. Forested buffers mitigate wetland impacts by attenuating runoff, reducing light and noise pollution, and limiting public encroachment. Encroachment into a wetland and/or wetland buffer is regulated by the LPRCA, and subject to offsetting requirements.

Further, development has potential to modify water inputs to adjacent water features, both by altering the catchment area of the feature (i.e., surface water which would have otherwise been directed to the feature), or through alterations to the groundwater table (e.g., construction of a basement). Where wetland is dependent on either surface or ground water inputs to sustain water levels, alteration to these inputs from development could inevitably impact the wetland and associated habitats. A water balance and hydrogeological assessment should reveal anticipated changes to a wetland by comparing pre-and post-development conditions.

Temporary construction activities, such as vegetation removal, refueling of machinery, and dewatering have the potential to indirectly impact the form and function of the wetland habitat. Preliminary mitigation measures have been developed to reduce impacts to the wetland and are described in **Section 6**.

5.2.1.3 *CANDIDATE SIGNIFICANT VALLEYLAND*

The Candidate Significant Valleyland south of the subject site is comprised of Significant Woodland, non-provincially significant evaluated wetlands, aquatic habitat and wildlife habitat. By way of protecting these components of the valleyland feature, it will maintain its function in supporting natural processes. The development will occur outside of the limit to this feature; therefore, direct impacts to its form will be avoided.

5.2.2 WILDLIFE

Potential impacts to wildlife and associated Natural Heritage Features are discussed below.

Significant Wildlife Habitat

The following candidate SWH types identified within the subject site are discussed in detail in **Section 4.6.4**:

- Candidate (unconfirmed) Waterfowl Stopover and Staging Areas (Terrestrial);
- Candidate (unconfirmed) Waterfowl Stopover and Staging Areas (Aquatic);
- Candidate (unconfirmed) Shorebird Migratory Stopover Area;
- Candidate (unconfirmed) Raptor Wintering Area;
- Candidate (unconfirmed) Bat Maternity Colony;
- Candidate (unconfirmed) Turtle Wintering Areas;
- Candidate (unconfirmed) Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs);
- Candidate (unconfirmed) Migratory Butterfly Stopover Areas;
- Candidate (unconfirmed) Landbird Migratory Stopover Areas;
- Candidate (unconfirmed) Other Rare Vegetation Communities;
- Candidate (unconfirmed) Waterfowl Nesting Area;
- Candidate (unconfirmed) Bald Eagle and Osprey Nesting, Foraging and Perching Habitat;
- Candidate (unconfirmed) Amphibian Breeding Habitat (Woodland);
- Candidate (unconfirmed) Amphibian Breeding Habitat (Wetland);
- Candidate (unconfirmed) Marsh Breeding Bird Habitat;
- Candidate (unconfirmed) Shrub/Early Successional Bird Breeding Habitat;
- Candidate (unconfirmed) Terrestrial Crayfish;
- Candidate (unconfirmed) Special Concern and Rare Wildlife Species; and,
- Candidate (unconfirmed) Amphibian Movement Corridors.

There is also candidate SWH that occurs outside of the subject site, yet within the study area, namely:

- Candidate (unconfirmed) Turtle Nesting Areas.

Breeding Bird Habitat

The removal of vegetation within the breeding bird season has the potential to impact nests, eggs and young of numerous species. Specific mitigation measures to address the protection of breeding birds as per the MBCA are outlined in **Section 6.**

Other Wildlife

The removal of vegetation within the subject site, as well as other construction activities, has the potential to impact other resident wildlife, such as turtles and snakes, that may inhabit or travel into the construction zone. General mitigation measures to address the protection of all other wildlife are outlined in **Section 6.**

These Natural Heritage Features are present throughout the subject site and overlap with the Significant Woodland area and non-provincially significant wetland habitat. Impacts discussed in **Section 5.2.1** above are generally applicable to SWH within the woodland and wetland habitat. Significant greater similar wildlife habitat will be retained to the southwest and southeast of the site along the Lake Erie shoreline. Wildlife habitat functions of the landscape are not anticipated to be significantly negatively impacted by the LEIP Wastewater Treatment Plant. These potential impacts to wildlife and Natural Heritage Features can be managed through implementation of the wildlife mitigation measures and SAR mitigation measures outlined in **Section 6**.

5.2.3 SPECIES AT RISK

In addition to the above-noted potential impacts to general wildlife, the background review and field investigations identified 10 SAR and SCC, which have moderate potential to occur on or adjacent to the subject site (**Section 4.5)**. These 10 species have the potential to be impacted by the proposed works, as described below.

- **Bobolink** (Threatened, COSEWIC and COSSARO): The Dry – Moist Old Field Meadow and Forb Mineral Meadow Marsh habitat on and adjacent to the subject site may provide potentially suitable breeding habitat for this species. Direct impacts to nesting, foraging and perching habitat may occur as a result of the proposed treatment plant construction. This species receives species and general habitat protection under the ESA and mitigation measures for this species are outlined in **Section 6.**
- **Eastern Meadowlark** (Threatened, COSEWIC and COSSARO): The Dry – Moist Old Field Meadow and Forb Mineral Meadow Marsh habitat on and adjacent to the subject site may provide potentially suitable breeding habitat for this species. Direct impacts to nesting, foraging and perching habitat may occur as a result of the proposed treatment plant construction. This species receives species and general habitat protection under the ESA and mitigation measures for this species are outlined in **Section 6.**
- **Eastern Foxsnake (Carolinian and Great Lakes/St.Lawrence)** (Endangered, COSEWIC and COSSARO): This species has moderate potential to occur within the subject site within hedgerows adjacent to farm fields and old field and marsh habitat adjacent to watercourses.
- **Gray Ratsnake (Carolinian)** (Endangered, COSEWIC and COSSARO): This species has moderate potential to occur within the subject site within forested habitat adjacent to farm fields and old field and marsh habitat.
- **Endangered Bats** (Little Brown Bat, Northern Myotis and Eastern Small-footed Myotis): All species roost in large trees within forested habitats, while Little Brown Myotis commonly use buildings for maternity habitat. Trees with features such as cavities, crevices, knots, cracks, loose bark or leaf clusters could potentially provide suitable bat maternity roosting habitat. If tree

removals are required for construction of the proposed LEIP Wastewater Treatment Plant, there is potential for direct impacts to roosting bats, including lactating females and young, if tree removal, or construction occurs within the sensitive period for bats. Higher quality forested habitat is present in the remainder of the forested tract to the southwest and southeast along the Lake Erie shoreline. These species receive species and general habitat protection under the ESA and mitigation measures for these Endangered bats are outlined in **Section 6**.

- **Butternut** (Endangered, COSEWIC and COSSARO): Similar forested riparian habitat is likely available in the retained forest tract southwest and southeast of the subject site and along the Lake Erie shoreline.
- **Snapping Turtle** (Special Concern, COSEWIC and COSSARO): This species has moderate potential to occur within the subject site within riverine and wetland habitat.
- **Monarch** (Special Concern, COSEWIC and COSSARO): This species' larval host plant Milkweed was recorded during site investigations. Since similar habitat is abundant in the greater area based on review of aerial imagery (Google Earth 2021), there is minimal potential for impacts to the species.

5.2.4 AQUATIC

Within the project study limits aquatic constraints consist of the two existing watercourses, Watercourse 1, and Centre Creek. While proposed works have no identified water crossings, the development of Site B land parcel may have direct and/or indirect impacts on the existing tributaries, drainage pathways and watercourses. Impacts to these aquatic features may impact direct and indirect fish habitat.

The Lake Erie shoreline, while not within the Site B land parcel is included in the previous 2011 ESR. The proposed works have an outfall discharge pipe leading into Lake Erie, with the potential to directly impact the Lake Erie shoreline, lakebed, and direct fish habitat. The detailed 2011 bathymetric and underwater assessment indicates that there is no sensitive, limited habitat within the proposed path of the outfall pipe. Further discussions with agencies (e.g., DFO) will be required to confirm initial assessments and determine approvals requirements.

6 MITIGATION

This report aims to provide high-level considerations for the subject site until such time as a more refined assessment can be completed as part of a scoped EIS based upon detailed design. Feature limits, setbacks, and environmental management recommendations should be reviewed and refined through further multi-season field visits, project team liaison and further design of the proposed works. Primary focal areas included the development interface associated with the woodland and wetland habitat and lakeshore hazard lands to the south of the subject site.

The following general, high-level mitigation measures should be implemented in order to minimize impacts to vegetation, associated habitat features, and wildlife within and adjacent to the proposed works.

Project Planning

- An Emergency Response Plan should be developed by the Contractor to be implemented immediately in the event of a sediment release or a spill of a deleterious substance.
- The limit of any area to be disturbed should be clearly marked prior to the commencement of the work and the markings should be maintained for the duration of the contract.

- Mitigation measures should be reviewed and confirmed during Detail Design.

General Construction Mitigation for Vegetation

- Removal of vegetation including large trees or large stands of trees has been mitigated by the preferred design and land-based effluent pipe route alignment (AECOM 2011).
- Minimize the extent of vegetation removal and damage within construction access, work and staging areas, particularly adjacent to the woodland or wetlands. These areas will be clearly identified in the Contract documents, and then delineated in the field using erosion and sediment control fencing. Erosion and sediment control fencing will be maintained throughout the construction period.
- Re-stabilize and revegetate exposed soil surfaces as soon as possible, using native seed mixes where possible.
- Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
- Conduct vehicle maintenance and fueling at the designated and properly contained maintenance areas in the works yards or at commercial garages located well away from retained vegetation areas.
- All construction-related materials, equipment, and construction-generated materials (e.g., sediment in dewatering or runoff from exposed soils, stockpiled soils or other materials from clearing and grubbing) shall be properly stored/contained, maintained, filtered and otherwise handled and managed at a distance of at least 30 m away from significant areas (e.g., watercourses and wetlands).

Tree Removals

- Under the County's Forest Conservation By-law (By-law 2204/20), the study area qualifies for an exemption under Section 5.1: "activities or matters undertaken by a municipality or a local board of a municipality." Therefore, permitting is not required.
- Ash materials should be removed from the site and disposed of within the 'Regulated Area' [see Canada Food Inspection Agency website (CFIA 2021)].

Natural Heritage Feature Mitigation

- To aid in maintaining the ecological functions associated with the Significant Woodland (including wildlife habitat functions for resident and migratory woodland birds), the woodland areas within the property should be retained if feasible.
- Candidate SWH assessment should be refined based on additional surveys, including seasonally appropriate breeding bird surveys, amphibian surveys, and Ecological Land Classification (ELC) assessment. Surveys should be a component of a scoped EIS completed during Detail Design.
- With these mitigation measures, the forested areas within the subject site should maintain the Significant Woodland designation and associated ecological functions.

Wetlands

In addition to the mitigation measures outlined above to protect vegetation within Natural Heritage Features, the following mitigation measures will be implemented to protect aquatic habitat where relevant based on the specific works during and following construction activities:

- An environmental management plan will be prepared, which will outline proposed best management practices with respect to the management of hazardous materials, spill prevention, spill response, dust control, erosion and sediment control (ESC), construction dewatering and discharge management, monitoring, and mitigation, and safety and security of the subject site with respect to the general public and wildlife.
- ESC measures shall be identified in the contract and all associated contract drawings. More specifically, the Contractor shall control erosion and sediment caused by construction methods and operations including but not limited to stockpiles, access and service roads, storage and work areas, and non-designated disposal areas to meet all legislative requirements to prevent the entry of sediment into the watercourse and prevent any migration of sediment beyond the construction area.
- All construction-related activities should be controlled so as to prevent entry of any petroleum products, debris or other potential contaminants / deleterious substances, in addition to sediment as outlined above, to the wetland.
- Future studies should consider potential hydrological impacts to the wetland. This may involve completion of a water balance report. Site-specific mitigation measures should be developed based on the results of future studies.

Aquatic Resources

- Schedule in-channel construction to avoid the restricted activity period set out by NDMNRF: March 1st to July 1st. This timing window should be confirmed with DFO and/or LPRCA.
- Restore disturbed areas/habitat to natural or improved conditions.
- As part of detail design, hydrogeological investigations should be carried out prior to construction to identify appropriate dewatering techniques and potential impacts to fish and fish habitat.
- All water pumped from the site during construction should be released into settling basins or other similar measures to dissipate flows and remove suspended sediment if the outflow will enter a watercourse following its release.
- Review of the outlet pipe design and potential impact should be completed during Detail Design along with a determination regarding the need to submit a Request for Review to DFO.

Sediment and Erosion Control

- Erosion and Sediment Control (ESC) measures should be installed prior to the initiation of construction works to prevent off-site movement of deleterious substances downstream into Lake Erie. Silt curtains should be installed at the perimeter of any work being completed in Lake Erie.
- All ESC measures should be inspected and maintained by the Contractor to ensure they are functioning as intended throughout the construction period and until such time that construction is completed. If ESC measures become damaged, they will be repaired / replaced by the Contractor as soon as possible.
- All ESC measures that are non-biodegradable should be removed from the site when work is complete, and the site is stabilized.
- Temporary stockpiling and construction staging areas should be located in defined areas and properly contained to prevent any migration of materials from the subject site.
- ‘Excess material’ from the construction activity should be removed off-site, or reused, or placed only in those areas identified in the Contract documents.

- Regular inspection should be implemented throughout construction to ensure that environmental protection measures are implemented, maintained and repaired and that remedial measures are initiated where warranted.
- Proposed erosion and sediment control plan will, at a minimum, be consistent with the recommendations contained within the "Erosion and Sediment Control Guide for Urban Construction" (TRCA 2019) and "Measures to Protect Fish and Fish Habitat" (DFO 2019).
- Any areas disturbed by construction will be restored and stabilized as soon as is practicable.

Operation of Machinery

- Machinery should arrive on site in a clean condition and maintained free of fluid leaks.
- Any wildlife encountered during construction should not be knowingly harmed. Animals within the construction zone should be allowed to move away from the area on their own and if they do not, the Contract Administrator should be notified.

Migratory Bird Protection

To reduce the possibility of contravention of the Migratory Birds Convention Act (MBCA), vegetation removal should be scheduled to occur outside of the overall bird nesting season of April 1 to August 31. Some birds may nest before and after this peak bird nesting season due to annual seasonal fluctuations. If a nest of a migratory bird is found within the construction area outside of this nesting period, it still receives protection.

In addition to the bird-nesting season, tree removals should also occur outside of the active period for SAR bats (e.g., up to the end of September); therefore, considering the bird nesting and bat active seasons, **clearing of trees is only permitted between October 1 to March 31**.

If vegetation must be removed during the overall bird nesting season:

- Nest and nesting activity searches should be conducted in areas defined as simple habitat (i.e., a Mineral Cultural Meadow community) by a qualified Biologist no more than 24 hours prior to vegetation removal. Nesting activity should be documented when it consists of confirmed breeding evidence, as defined by OBBA criteria (Cadman, 2009).
- If an active nest or confirmed nesting activity of a migratory bird is observed in simple habitat, regardless of the timing window recommended, a species-specific buffer area following ECCC guidelines should be applied to the nest or confirmed nesting activity wherein no vegetation removal will be permitted until the young have fledged from the nest. The radius of the buffer will depend on species, level of disturbance and landscape context (ECCC 2018), which will be confirmed by a qualified Biologist, but will protect a minimum of 10 m around the nest or nesting activity.
- The results of all nest searches should be documented at the end of each survey day in a Technical Memorandum, including information on the searcher, date, time conducted, weather conditions, habitat type, vegetation community type, observations of breeding activity, observations of confirmed nests including co-ordinates, and, if required, the buffer applied to identified breeding / nesting sites.

If vegetation removal must occur in complex habitats (e.g., sites with an abundance of diverse vegetation and nesting opportunities) within the above-listed timing windows and absolutely cannot be avoided, the same Best Management Practices (BMPs) such as nest and nesting activity searches described above should be undertaken.

Species at Risk

In the event that a SAR is found in the construction area, all activities that could potentially harm the animal should cease immediately and the Contract Administrator should be notified. The Contract Administrator or their biologist should then contact the MECP SAR Biologist and DFO for direction, as these animals are protected under the ESA (2007) and SAR fish or mussels are protected under SARA.

Based on the site-specific conditions, 10 SAR have reasonable potential to be encountered incidentally within the work area, and therefore there is some risk of harm to these species, as discussed in **Section 5.2.3.** Of these 10 species, 8 (Bobolink, Eastern Meadowlark, Eastern Foxsnake, Gray Ratsnake, Little Brown Bat, Northern Myotis, Eastern Small-footed Myotis and Butternut) are listed as Endangered or Threatened and receive species and habitat protection under the provincial ESA. The remaining two species (Snapping Turtle and Monarch) are listed as Special Concern under the ESA. The following outlines specific mitigation measures to protect these SAR, as well as additional general SAR mitigation.

ENDANGERED BATS

Risk of contravention of Section 9 of the ESA (prohibition on killing, harming, harassing, etc.), can be reduced through timing restrictions for tree and vegetation removal.

- It is recommended a snag density survey be undertaken in accordance with the MECP's latest guidance. If the results of this assessment indicate the treed habitats on the subject site have potential to support roosting bats, the MECP should be consulted detailed design to confirm the next steps.
- No tree removals should be undertaken until such time an assessment for bat habitat is completed by a qualified ecologist. When tree removal is approved, removals should be undertaken during the bat hibernation period (i.e., October 1 to March 31) to ensure that no direct harm to SAR bat individuals occurs (including potential maternal and day-roosting bats).

OTHER SAR

The following mitigation measures are to protect SAR species generally:

- The subject site and adjacent 50 m area should be assessed for Butternut. Where a Butternut is confirmed, an approved Butternut Health Assessor should complete the standardized assessment to determine the health of the tree and provide site-specific direction related to approval under the ESA.
- Adhere to mitigation measures outlined in **Section 6** for MBCA compliance to avoid impacts to other SAR bird species potentially nesting in the work area or vicinity.
- If a SAR or possible SAR is found within or adjacent to the construction zone, all activities that could harm the SAR will cease immediately and the Contract Administrator will be notified. The Contract Administrator will then contact an MECP SAR Biologist for direction. SAR identification information can be found at: https://www.ontario.ca/environment-and-energy/species-risk-ontario-list.
- SAR or potential SAR will not be handled prior to consulting with the MECP SAR Branch.

Other Wildlife

For the protection of wildlife in general, the contractor will ensure that:

- Any wildlife incidentally encountered during construction will not be knowingly harmed and will be allowed to move away on its own. In the event that an animal encountered during construction does not move from the construction zone and construction activities are such that continuing

construction in the area would result in harm to the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified.

- Any equipment parked overnight in the area will also be inspected to ensure no wildlife have climbed into or beneath it.
- The inclusion of Milkweed in planting plans should be considered in order to support the SCC Monarch.

7 CONCLUSIONS

This document provides a high-level understanding of site conditions, development constraints, potential impacts and mitigation measures for the proposed wastewater treatment plant on the property located north of New Lakeshore Road on lands adjacent to and within Stelco: Lake Erie Works property within the Townships of Walpole and Woodhouse within the southwest corner of Haldimand County.

Potential vegetation impacts associated with the construction activities include the removal of a small portion of Significant Woodland, and removal of the evaluated non-provincially significant wetland. Potential impacts to the woodland include vegetation removals, the removal of the existing forest edge and the creation of a new edge, the removal of a small number of locally rare species and indirect impacts to interior forest habitat. Anticipated indirect impacts to the wetlands include the removal of a portion of the naturally occurring vegetated buffers. Forested buffers mitigate wetland impacts by attenuating runoff, reducing light and noise pollution, and limiting public encroachment. Encroachment into a wetland and/or wetland buffer is regulated by the LPRCA, and subject to offsetting requirements. If a minimum setback of 30 m from wetland is applied, no direct impacts to the wetland are anticipated to occur.

The wildlife species recorded within the current project area consisted of common species. Based on the available background information and field survey findings, 10 SAR have potential to use habitat within the project limits, specifically: Bobolink, Eastern Meadowlark, Eastern Foxsnake, Gray Ratsnake, Little Brown Bat, Small-footed Bat, Northern Long-eared Bat, Butternut, Snapping Turtle and Monarch. Additionally, candidate SWH occurs within and outside of the subject site. Seasonally appropriate surveys are recommended to confirm the absence/presence of SAR and SWH within and site and to refine development constraints. Specific measures for some species, such as the use of a timing restriction for tree removals to accommodate SAR bats and breeding birds, are required to ensure that impacts are minimized. Direct impacts related to SWHs generally correspond to impacts for the Significant Woodland and evaluated wetlands and are captured within the mitigation measures. In the event that SAR may be impacted by the proposed treatment plant, permitting under the ESA may be required.

The aquatic habitat within the current project site consists of two watercourses – Watercourse 1 and Centre Creek. The preliminary proposed works have no direct impacts associated with watercourse crossings, though the development of the project site may have direct and/or indirect impacts on the existing aquatic features and fish habitat through realignment requirements and the placement of the outlet pipe on the lake bed. To determine potential approvals related to project-related impacts to fish and fish habitat a Request for Review should be submitted to DFO during detailed design. Further considerations for any development of the Lake Erie shoreline or lakebed will need to be taken into account during future designs.

Key recommendations include general construction mitigation for vegetation, timing windows to protect breeding birds and the recommendations for additional studies. The risk of all other potential impacts to SAR, fish habitat, vegetation communities and general wildlife species can be reduced or minimized through general mitigation measures (e.g., vegetation timing window, installation of ESC measures). The

identified mitigation should be refined following additional field assessments, agency consultation and modifications to the site plan through the Detail Design phase.

It is WSP's preliminary opinion that the results of this addendum indicate that potential negative impacts to the Natural Heritage Features or their ecological functions adjacent to the subject site require further study during detailed design, but negative effects can likely be avoided, minimized or mitigated with the implementation of mitigation and compensation measures.

8 REFERENCES

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APPENDIX

A FIGURES

L:\Projects\2021\211_10308_00_LakeErieIndustrialPark\MXDs\211_10308_00_LakeErieIndustrialPark_NaturalHeritageFeatures_202111.mxd 30 Nov 2021

Legend

Aquatic Habitat

- Thermal Regime - Warm
- No Fish Habitat
- Direct Fish Habitat
- Study Area (approximate)
- 120m Area of Investigation
- Railway
- Intermittent Watercourse
- Permanent Watercourse
- LPRCA Regulated Area
- Evaluated Wetland
- Unevaluated Wetland
- Wooded Area

Centre Creek

Stelco Creek Wetland

Lake Erie (lac Érié)

bing

wsp

LAKE ERIE INDUSTRIAL PARK

Natural Heritage Features

0 50 100 150 200

Meters

1:5,000

N

Date: November 2021

Project No: 211-10308-00

Figure No: 2

D:\aProjects\211-10308-00\MXD\211-10308-00 Figure 1 Existing Conditions Oct 19 2021.mxd 19 Oct 2021

MAMM1-12
OAGM1
CUM1-1
CVC_3
SWD2-2
OA
CUT1
OA
CUT1
MAM2-10
CUT1
OAGM1
CUT1
CUT1
OAGM1
OAGM1
MAMM1-12
CUT1
OAGM1
CUT1
FOD9
FOD9
OAGM1
MAMM1-12
MAM2-2
FOD7-4
MAM2-10
CUT1
NEW LAKESHORE ROAD
SWD
MAS2-1
MAM2-10
FOD
CUP1
CUT1
Lake Erie
(lac Érié)

Legend

- Study Area (approximate)
- 120m Area of Investigation
- Ecological Land Classification
- Intermittent Warmwater Watercourse
- Permanent Warmwater Watercourse
- Wooded Area
- Evaluated Wetland
- Unevaluated Wetland
- Regulation Limit

Ecological Land Classification Descriptions
CUM1-1 – Dry – Moist Old Field Meadow
CUP1 – Deciduous Plantation
CUT1 – Mineral Cultural Thicket
CVC_3 – Heavy Industry
FOD – Deciduous Forest
FOD7-4 – Fresh – Moist Black Walnut Lowland Deciduous Forest
FOD9 – Fresh – Moist Oak – Maple – Hickory Deciduous Forest
MAM2-2 – Reed-canary Grass Mineral Meadow Marsh
MAM2-10 – Forb Mineral Meadow Marsh
MAMM1-12 – Common Reed Graminoid Mineral Meadow Marsh
MAS2-1 – Cattail Mineral Shallow Marsh
OA – Open Aquatic
OAGM1 – Annual Row Crops
SWD – Deciduous Swamp
SWD2-2 – Green Ash Mineral Deciduous Swamp

wsp

LAKE ERIE INDUSTRIAL PARK
Existing Conditions

0 50 100 150 200
Meters
1:5,000

N

Date: October 2021
Project No: 211-10308-00
Figure No: 1

APPENDIX

B AGENCY CORRESPONDENCE

Perkin, Carlene

From: Paquette, Pierre
Sent: November 29, 2021 3:01 PM
To: Perkin, Carlene
Subject: FW: Information Request

From: Brothers, Brianne (MECP) <Brianne.Brothers@ontario.ca>
Sent: October 28, 2021 9:01 PM
To: Paquette, Pierre <Pierre.Paquette@wsp.com>
Cc: Pomeroy, Mark <Mark.Pomeroy@wsp.com>
Subject: RE: Information Request

Hello Pierre,

MECP agrees with the species identified in your Natural Heritage Information Request. Please consider SAR bats in your list of SAR species as well.

It is important to recognize that the species identified are not a complete list and that on site assessments are required to better verify site conditions, identify and confirm presence of species at risk and/or their habitats. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the activities carried out on the site.

Please note it remains the clients responsibility to:

- Carry out preliminary screening for their project,
- Obtain the best available information for all applicable information sources,
- Conduct necessary field studies or inventories to identify and confirm the presence of absence of species at risk or their habitat,
- Consider any potential impacts to species at risk that a proposed activity might cause, and
- Comply with the Endangered Species Act (ESA).

Sincerely,

Brianne

Brianne Brothers
A/Management Biologist, Permissions and Compliance Section
Species at Risk Branch
Ministry of the Environment, Conservation and Parks
(905)-321-5736 | Brianne.brothers@ontario.ca

From: Paquette, Pierre <Pierre.Paquette@wsp.com>
Sent: October 22, 2021 11:08 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Pomeroy, Mark <Mark.Pomeroy@wsp.com>
Subject: Information Request

Hello, my name is Pierre Paquette, ecologist with WSP.

WSP has been retained by Haldimand County to update a previously completed EIS, so I am requesting background data through the submission of the attached letter and map.

Please let me know if you have any questions.

Thanks,

Pierre Paquette
Terrestrial Ecologist
Ecology and Environmental Impact Assessment (EIA)

T+ 1 705-493-9082

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Perkin, Carlene

From: Paquette, Pierre
Sent: November 19, 2021 10:06 AM
To: Perkin, Carlene
Subject: FW: Information Request
Attachments: Wetland Evaluation Form Stelco Creek Wetland.pdf

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From: Denyes, David (NDMNRF) <David.Denyes@ontario.ca>
Sent: October 22, 2021 1:50 PM
To: Paquette, Pierre <Pierre.Paquette@wsp.com>
Subject: RE: Information Request

Hello Pierre,

Thank you for your request for information on natural heritage features.

It remains the proponent's responsibility to complete a preliminary screening for each project, to obtain available information from multiple sources, to conduct any necessary field studies, and to consider any potential environmental impacts that may result from an activity.

The Ministry continues to work on updating data housed by Lands Information Ontario and the Natural Heritage Information Centre, and ensuring this information is accessible through online resources. Species at risk data is regularly being updated. To ensure access to reliable and up to date information, please contact SAROntario@ontario.ca.

This information will assist in scoping the necessary field assessments for an area if development or site alteration is proposed. This information is not meant to replace the responsibility of the proponent to undertake species and / or habitat surveys. Surveys or additional site level assessment are often required to confirm presence or absence of natural heritage features and values. Environmental consulting firms have the professional and technical expertise to assess sites for natural heritage features and can gauge the potential for such features to exist.

Absence or lack of information for a given geographic area does not necessarily mean the absence of natural heritage features. Many areas in Ontario have never been surveyed and new plant and animal species records are still being discovered for many localities. In addition, new species may be listed and new natural heritage features may be defined over time. For these reasons, the Ministry cannot provide a definitive statement on the presence, absence or condition of natural heritage features in all parts of Ontario.

All available natural heritage information that the district would have for this area should be accessible in LIO. I have attached a copy of the wetland evaluation record for the Stelco Creek Wetland (evaluated-non PSW).

Restricted activity timing windows are applied to protect fish from impacts of undertakings in and around water during critical life cycle stages. The recommended timing restrictions for this tributary of Lake Erie is March 1st to July 1st (Note: dates represent when work should be avoided).

Please note that all matters related to species at risk are now the responsibility of MECP and you can reach out to MECP staff to see whether they have any additional information for this site.

Thank you for your inquiry.

David

David Denyes
Management Biologist
Ministry of Northern Development, Mines, Natural Resources and Forestry
Vineland Field Office
4890 Victoria Avenue North
Vineland Station ON, L0R 2E0
Tel: (289) 241-6872
david.denyes@ontario.ca

From: Paquette, Pierre <Pierre.Paquette@wsp.com>
Sent: October 22, 2021 11:11 AM
To: Dickson, Cheryl (NDMNRF) <Cheryl.Dickson@ontario.ca>
Cc: Pomeroy, Mark <Mark.Pomeroy@wsp.com>
Subject: Information Request

Good morning Ms. Dickson, my name is Pierre Paquette, ecologist with WSP.

WSP has been retained by Haldimand County to update a previously completed EIS, so I am requesting background data through the submission of the attached letter and map. Please let me know if you aren't the right individual to submit this to and who the correct person is.

Thanks for your help,

Pierre Paquette
Terrestrial Ecologist
Ecology and Environmental Impact Assessment (EIA)
T+ 1 705-493-9082

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Stelco Creek Wetland

Wetland Evaluation Edition	3

August 20th 2007

Comments

This evaluation was done through a combination of roadside evaluation, aerial photo interpt and some on site visiting due to a lack of available landowner information at the county office. Local resident claimed ontario hydo owns the site - this has not been comfirmed.

Additional Information

Include relevant information that can not be entered in the wetland data record(Ex. Sections that have not been completed.)

Farther to west of this wetland is Fories creek - this area was not evaluated because of lack of permission due to potential windpower development - this area should be evaluated and complexed with FS 1.

Official Name:	Stelco Creek Wetland				
Evaluation Edition:	3	Class:		Wetland ID.:	FS 1
Wetland Significance	Year/Month Last Evaluated			August 20th 2007	
Local	Year/Month Last Updated				
Special Planning Considerations:				**Scores**	
				Biological:	107
				Social:	77
				Hydrological:	121
				Special Features:	178
Information Source	Field observations, Erin Sanders			Overall:	483
Submitted by:					
Date:					

WETLAND DATA AND SCORING RECORD

i) **WETLAND NAME:** **Stelco Creek Wetland (FS 1)**

ii) **MNR ADMINISTRATIVE REGION:** **Southern** **DISTRICT:** **Aylmer**

AREA OFFICE (if different from District):

iii) **CONSERVATION AUTHORITY JURISDICTION:** **LPRCA**

(If not within a designated CA, check here: _____

iv) **COUNTY OR REGIONAL MUNICIPALITY:** **Haldimand**

v) **TOWNSHIP:** **Woodhouse**

vi) **LOTS & CONCESSIONS:** **Lot 23 and 24 Concession 1**
(attach separate sheet if necessary)

vii) **MAP AND AIR PHOTO REFERENCES**

a) Latitude: **80 6 35** Longitude: **42 47 25**

b) UTM grid reference: Zone: **17** Block: **NT**
Grid:E _____ Grid:N _____

c) National Topographic Series:

map name(s) **Simcoe**

map number(s) **040I/16** edition **8**

scale **1:50 000**

d) Aerial photographs: Date photo taken: **Spring 2006** Scale: **1:10000**

Flight & plate numbers: **Ortho Rectified Digital Aerial Photography**

(attach separate sheet if necessary)

e) Ontario Base Map numbers & scale **1017570047350**

1:10 000
(attach separate sheets if necessary)

Field Comm	Comm Code		Site Type							Soil Type							Dominate Vegetation														Vegetation Forms	No. of Forms	Wetland Type				% OPEN WATER		
	WT	SC	I	P	R	L	RRM	LEB	LEL	C/L	S/M	Lim	S	H/M	F	G	H	C	DH	DC	TS	LS	DS	GC	M	NE	BE	RE	FF	F	SU	U			Sw	Ma	Fe	Bo	LOW	HIGH	AVG
1	M	2		1.14						1.14																1.14							h, ls, gc, ne	4		1.14					0
Total			0.00	1.14	0.00	0.00	0.00	0.00	0.00																																
2	M	1		1.06						1.06																1.06							ls, gc, ne	3		1.06					0
Total			0.00	1.06	0.00	0.00	0.00	0.00	0.00																																
3	S	4		0.52						0.52											0.52												h, ts, ls, gc, ne, be, re	7	0.52						0
Total			0.00	0.52	0.00	0.00	0.00	0.00	0.00																																
4	S	5					0.55			0.55											0.55												h, ts, ls, gc, ne, re, su	7	0.55						0
Total			0.00	0.00	0.00	0.00	0.55	0.00	0.00																																
5	M	3			3.13					3.13																3.13							ls, gc, ne, re	4		3.13					0
Total			0.00	0.00	3.13	0.00	0.00	0.00	0.00																																
6	M	3a		0.58						0.58																0.58							ls, gc, ne, re	4		0.58					0
Total			0.00	0.58	0.00	0.00	0.00	0.00	0.00																																
Total										6.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	0.00	0.00	0.00	0.00	5.91	0.00	0.00	0.00	0.00	0.00	0.00			1.07	5.91	0.00	0.00			

Wetland Manual

viii) WETLAND SIZE AND BOUNDARIES

a) Single contiguous wetland area: _____ hectares

b) Wetland complex comprised of 6 individual wetlands:

Wetland Unit Number (for reference)		Size of each wetland unit							
		Isolated	Palustrine	Riverine	Lacustrine	Riv. R.M.	Lac.E.B.	Lac.E.L.	
Wetland Unit No.	1	0.00	1.14	0.00	0.00	0.00	0.00	0.00	ha
Wetland Unit No.	2	0.00	1.06	0.00	0.00	0.00	0.00	0.00	ha
Wetland Unit No.	3	0.00	0.52	0.00	0.00	0.00	0.00	0.00	ha
Wetland Unit No.	4	0.00	0.00	0.00	0.00	0.55	0.00	0.00	ha
Wetland Unit No.	5	0.00	0.00	3.13	0.00	0.00	0.00	0.00	ha
Wetland Unit No.	6	0.00	0.58	0.00	0.00	0.00	0.00	0.00	ha
Wetland Unit Totals:		0.00	3.30	3.13	0.00	0.55	0.00	0.00	

(Attach additional sheets if necessary)

TOTAL WETLAND SIZE 6.98 ha

c) Brief documentation of reasons for including any areas less than 0.5 ha in size:

(Attach separate sheets if necessary .)

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

1.1.1 GROWING DEGREE-DAYS/SOILS

GROWING DEGREE DAYS (check one)		
1)		<2800
2)		2800 -3200
3)		3200 -3600
4)	x	3600 -4000
5)		>4000

SOILS Estimated Fractional Area	
1.00	clay/loam
0.00	silt/marl
0.00	limestone
0.00	sand
0.00	humic/mesic
0.00	fibric
0.00	granite

Determine the soil type from the appropriate OMAF soils maps

SCORING:

Growing Degree-Days	**Clay-Loam**	Silt-Marl	Lime-stone	Sand	Humic-Mesic	Fibric	Granite
<2800	15	13	11	9	8	7	5
2800-3200	18	15	13	11	9	8	7
3200-3600	22	18	15	13	11	9	7
3600-4000	**26**	21	18	15	13	10	8
>4000	30	25	20	18	15	12	8

(maximum score 30; if wetland contains more than one soil type, evaluate based on the fractional area)

Steps required for evaluation: (maximum score 30 points)

1. Select GDD line in evaluation table applicable to your wetland;
2. Determine fractional area of the wetland for each soil type;
3. Multiply fractional area of each soil type by score;
4. Sum individual soil type scores (round to nearest whole number).

In wetland complexes the evaluator should aim at determining the percentage of area occupied by the categories for the complex as a whole.

Score		
26	clay/loam	26.00
	silt/marl	0.00
	limestone	0.00
	sand	0.00
	humic/mesic	0.00
	fibric	0.00
	granite	0.00

Final Score Growing Degree-Days/Soils (maximum 30 points) 26

1.1.2 WETLAND TYPE (Fractional Area = area of wetland type/total wetland area)

Estimate the Wetland Type from air photos or default to "swamp" (8)

	Fractional Area		Score
Bog		x 3	0.0
Fen		x 6	0.0
Swamp	0.15	x 8	1.2
Marsh	0.85	x 15	12.7
		Subtotal:	13.9

Wetland type score (maximum 15 points) 14

1.1.3 SITE TYPE (Fractional Area = area of site type/total wetland area)

Estimate from air photos

	Fractional Area		Score
Isolated	0.00	x 1 =	0.00
Palustrine (permanent or intermittent flow)	0.47	x 2 =	0.95
Riverine	0.45	x 4 =	1.79
Riverine (at rivermouth)	0.08	x 5 =	0.39
Lacustrine (at rivermouth	0.00	x 5 =	0.00
Lacustrine (on enclosed bay, with barrier beach)	0.00	x 3 =	0.00
Lacustrine (exposed to lake)	0.00	x 2 =	0.00
		Sub Total:	3.13

Site Type Score (maximum 5 points) 3

1.2 BIODIVERSITY

1.2.1 NUMBER OF WETLAND TYPES

(Check only one)			Score
1)		one	9 points
2)	13	two	13
3)		three	20
4)		four	30

Number of Wetland Types Score (maximum 30 points) 13

1.2.2 VEGETATION COMMUNITIES

Attach a separate sheet listing community (map) codes,vegetation forms and dominant species.
Use the form on the following page to record percent area by dominant vegetation form. This information will be used in other parts of the evaluation.

Communities should be grouped by number of forms. For example, 2 form communities might appear as follows:

2 forms

Code	Forms		Dominant Species				
M6	re,	ff	re,	*Typha latifolia;*	ff,	*Lemna minor,*	*Wolffia*
S1	ts,	gc	ts,	*Salix discolor;*	gc,	*lmpatiens capensis,*	*Thelypteris palustris*

Note that the dominant species for each form are separated by a semicolon. The dominant species (maximum of 2) within a form are separated by commas.

Scoring:

Total # of communities with 1-3 forms	Total # of communities with 4 -5 forms	Total # of communities with 6 or more forms
1 = 1.5 points	1 = 2 points	1 = 3 points
2 = 2.5	2 = 3.5	2 = 5
3 = 3.5	3 = 5	3 = 7
4 = 4.5	4 = 6.5	4 = 9
5 = 5	5 = 7.5	5 = 10.5
6 = 5.5	6 = 8.5	6 = 12
7 = 6	7 = 9.5	7 = 13.5
8 = 6.5	8 = 10.5	8 = 15
9 = 7	9 = 11.5	9 = 16.5
10 = 7.5	10 = 12.5	10 = 18
11 = 8	11 = 13	11 = 19
+.5 each additional community = 1.5	+.5 each additional community = 5.0	+ 1 each additional community = 5.0

e.g., a wetland with 3 one form communities 4 two form communities 12 four form communities and 8 six form communities would score:

6 + 13.5 + 15 = 34.5 = 35 points

Vegetation Communities Score (maximum 45 points) 12

Wetland Name: Stelco Creek Wetland (FS 1)

Wetland Size (ha): 6.98

Vegetation Form	% area in which form is dominant
h	0.00
c	0.00
dh	0.00
dc	0.00
ts	15.33
ls	0.00
ds	0.00
gc	0.00
m	0.00
ne	84.67
be	0.00
re	0.00
ff	0.00
f	0.00
su	0.00
u (unvegetated)	0.00
Total = 100%	100.00

1.2.3 DIVERSITY OF SURROUNDING HABITAT

(Check all appropriate items(1))

Determine from air photos

1	row crop
1	pasture
1	abandoned agricultural land
1	deciduous forest
	coniferous forest
1	mixed forest (at least 25% conifer and 75% deciduous or vice versa)
	abandoned pits and quarries
1	open lake or deep river
1	fence rows with cover, or shelterbelts
	terrain appreciably undulating,hilly,or with ravines
	creek flood plain
7	Subtotal

Diversity of Surrounding Habitat Score (1 for each, maximum 7 points) 7

1.2.4 PROXIMITY TO OTHER WETLANDS

(Check first appropriate category only) Scoring

Determine from air photos and other wetlands evaluations in the vicinity

1)	8	Hydrologically connected by surface water to other wetlands (different dominant wetlaI1d type) or to open lake or deep river within 1.5 km — 8 points
2)		Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km — 8
3)		Hydrologica11y connected by surface water to other wetlands (different dominant wetland type),or to open lake or deep river from 1.5 to 4 km away — 5
4)		Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away — 5
5)		Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water — 5
6)		Within 1 km of other wetlands,but not hydrologically connected by surface water — 2
7)		No wetland within 1 km — 0

Proximity to other Wetlands Score (Choose one only, maximum 8 points) 8

1.2.5 INTERSPERSION

Optional: Complete as time permits or as scoring dictates.

	Number of Intersections (Check one)		Score
1)	26 or less		3
2)	27 to 40		6
3)	41 to 60	9	9
4)	61 to 80		12
5)	81 to l00		15
6)	101 to 125		18
7)	126 to 150		21
8)	151 to 175		24
9)	176 to 200		27
10)	>200		30

Interspersion Score (Choose one only maximum 30 points) 9

1.2.6 OPEN WATER TYPES

Determine from aerial photos.

	Permanently flooded: (Check one)		Score
1)	8	type 1	8
2)		type 2	8
3)		type 3	14
4)		type 4	20
5)		type 5	30
6)		type 6	8
7)		type 7	14
8)		type 8	3
9)		no open water	0

Open Water Type Score (Choose one only maximum 30 points) 8

1.3 SIZE

Score may be lower than actual if "Vegetation Community and Interspersion" have not been calculated.

7.0 hectares 57 Subtotal for Biodiversity

Size Score (Biological Component) (maximum 5O points) 7

Evaluation Table Size Score (Biological component)

Wetland size (ha)	Total Score for Biodiversity Subcomponent									
	<37	37-48	**49-60**	61-72	73-84	85-96	97-108	109-120	121-132	>132
<21 ha	1	5	**7**	8	9	17	25	34	43	50
21-40	5	7	8	9	10	19	28	37	46	50
41-60	6	8	9	10	11	21	31	40	49	50
61-80	7	9	10	11	13	23	34	43	50	50
81-100	8	10	11	13	15	25	37	46	50	50
101-120	9	11	13	15	18	28	40	49	50	50
121-140	10	13	15	17	21	31	43	50	50	50
141-160	11	15	17	19	23	34	46	50	50	50
161-180	13	17	19	21	25	37	49	50	50	50
181-200	15	19	21	23	28	40	50	50	50	50
201-400	17	21	23	25	31	43	50	50	50	50
401-600	19	23	25	28	34	46	50	50	50	50
601-800	21	25	28	31	37	49	50	50	50	50
801-1000	23	28	31	34	40	50	50	50	50	50
1001-1200	25	31	34	37	43	50	50	50	50	50
1201-1400	28	34	37	40	46	50	50	50	50	50
1401-1600	31	37	40	43	49	50	50	50	50	50
1601-1800	34	40	43	46	50	50	50	50	50	50
1801-2000	37	43	47	49	50	50	50	50	50	50
>2000	40	46	50	50	50	50	50	50	50	50

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

2.1.1 WOOD PRODUCTS

Determine the percentage of the wetland area dominated by "h" or "c" by using aerial photograph.

Area of wetland forested (ha), i.e. dominant form is h or c. Note that this is not wetland size. (Check one only)

h:	0.00		c:	0.00

			Score
1)	0	<5 ha	0
2)		5 -25 ha	3
3)		26 -50 ha	6
4)		51- l00 ha	9
5)		101 -200 ha	12
6)		>200 ha	18

Source of information: Erin Sanders, Jason Webb
Field Observations

Wood Products Score (Score one only, maximum 18 points) 0

2.1.2 WILD RICE

(Check one)			Score (Choose one)
Present (minimum size 0.5 ha)	1)		6 points
Absent	2)	0	0

Source of information: Erin Sanders, Jason Webb
Field Observations

Wild Rice Score (maximum 6 points) 0

2.1.3 COMMERCIAL FISH (BAIT FISH AND/OR COARSE FISH

(Check one)			Score (Choose one)
Present	1)	12	12 points
Habitat not suitable for fish	2)		0

Source of infolmation: Field Observations, Jason Webb & Erin Sanders

If any part of the wetland is riverine or the District fisheries files indicate presence of fish score"present"

Commercial Fish Score (maximum 12 points) 12

2.1.4 BULLFROGS

(Check one)			Score (Choose one)
Present	1)		1 points
Absent	2)	0	0

Source of information: Erin Sanders, Jason Webb
Field Observations

Bullfrog Score (maximum 1 point) 0

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2.1.5 SNAPPING TURTLES

(Check one)			Score (Choose one)
Present	1)		1 point
Absent	2)	0	0

Source of information: Erin Sanders, Jason Webb; Field Observations

Snapping Turtle Score (maximum 1 point) 0

2.1.6 FURBEARERS

(Consult Appendix 9)

	Name of furbearer		Source of information
1)	Raccoon	3	Field Observation
2)	Skunk	3	Field Observation
3)	Red Fox	3	Field Observation
4)	Coyote	3	Field Observation
5)			
	SubTotal	12	

Scoring: 3 points for each species. maximum 12

Furbearer Score (maximum 12 points) 12

2.2 RECREATIONAL ACTIVITIES

Type of Wetland-Associated Use							
Intensity of Use	Hunting		Nature Enjoyment/ Ecosystem Study		Fishing		
High	40 points		40 points		40 points		
Moderate	20		20		20		
Low	8	8	8		8	8	
Not possible/NotKnown	0		0	0	0		
Totals		8		0		8	16

(score one level for each of the three wetland uses; scores are cumulative; maximum score 80 points)

Sources of information:

Hunting: Erin Sanders, Jason Webb; Filed Observations - Shotgun Shells

Nature: Erin Sanders, Jason Webb; Filed Observations

Fishing: Erin Sanders, Jason Webb; Filed Observations

Recreational Activities Score (maximum 80 points) 16

2.3 LANDSCAPE AESTHETICS

Score using ortho-aerial photography

2.3.1 DISTINCTNESS

(Check one)			Score (Choose one)
Clearly distinct	1)	3	3 points
Indistinct	2)		0

Landscape Distinctness Score (maximum 3 points) 3

2.3.2 ABSENCE OF HUMAN DISTURBANCE

(Check one)			Score (Choose one)
Human disturbances absent or nearly so	1)		7 points
One or several localized disturbances	2)	4	4
Moderate disturbance; localized water pollution	3)		2
Wetland intact but impairment of ecosystem quality intense in some areas	4)		1
Extreme ecological degradation, or water pollution severe and widespread	5)		0

Source of information: Erin Sanders, Jason Webb
Field Observations - Garbage

Absence of Human Disturbance Score (maximum 7 points) 4

2.4 EDUCATION AND PUBLIC AWARENESS

Optional: complete as time and scoring dictates.

2.4.1 EDUCATIONAL USES

(Check one)			Score (Choose one)
Frequent	1)		20 points
Infrequent	2)		12
No visits	3)	0	0

Source of information: Erin Sanders, Jason Webb - Landowner Contacts

Requires contact with Local Boards of Education.

Educational Uses Score (maximum 20 points) 0

2.4.2 FACILITIES AND PROGRAMS

(check one)			Score (Choose one)
Staffed interpretation centre	1)		8 points
No interpretation centre or staff but a system of self-guiding trails or brochures available	2)		4
Facilities such as maintained paths (e.g., woodchips) boardwalks, boat launches or observation towers but no brochures or other interpretation	3)		2
No facilities or programs	4)	0	0

Source of information: Erin Sanders, Jason Webb - Field Observations

Facilities and Programs Score (maximum 8 points) 0

2.4.3 RESEARCH AND STUDIES

(check appropriate spaces)		Score
Long term research has been done		12 points
Research papers published in refereed scientific journal or as a thesis		10
One or more (non-research) reports have been written on some aspect of the wetland ' s flora fauna hydrology etc.	5	5
No research or reports		0
Subtotal:	5	

Attach list of known reports by above categories

Refer to ESPA, EPA and ANSI reports.

Research and Studies Score (Score is cumulative, maximum 12 points) 5

2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT

Circle the highest applicable score

Distance of wetland from settlement	1) population> 10,000		2) population 2,500 -10,000		3) population <2,500 or cottage community	
1) Within or adjoining settlement	40 points		26		16	
2) 0.5 to 10 km from settlement	26		16	16	10	
3) 10 to 60 km from settlement	12		8		4	
4) >60 km from settlement	5		2		0	
		0		16		0

Name of settlement: Port Dover

Proximity to Human Settlement Score (maximum 40 points) 16

2.6 OWNERSHIP (FA= fraction Area) Score

Select a default value of "4" if no other information exists.

FA of wetland in public or private ownership held under contract or in trust for wetland protection		x	10	=	0.00
FA of wetland area in public ownership,not as above		x	8	=	0.00
FA of wetland area in private ownership,not as above	1.00	x	4	=	4.00

Source of information: Land owner contacts

Ownership Score (maximum 10 points) 4

Additional Reports
1. Stelco Creek Fisheries File. 1976. OMNR.
2. Norfolk County Municipal Groundwater Study, 2003. Norfolk County

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2.7 SIZE

The score may be lower than actual since economic and recreational values have not been completed.

7.0 hectares 56 Subtotal for Social

Evaluation Table for Size Score (Social Component)

Wetland Size (ha)	Total for Size Dependent Score									
	<31	31-45	**46-60**	61-75	76-90	91-105	106-120	121-135	136-150	>150
<2 ha	1	2	4	8	10	12	14	14	14	15
2 - 4ha	1	2	4	8	12	13	14	14	15	16
5 - 8ha	2	2	**5**	9	13	14	15	15	16	16
9 - 12ha	3	3	6	10	14	15	15	16	17	17
13-17	3	4	7	10	14	15	16	16	17	17
18-28	4	5	8	11	15	16	16	17	17	18
29-37	5	7	10	13	16	17	18	18	19	19
38-49	5	7	10	13	16	17	18	18	19	20
50-62	5	8	11	14	17	17	18	19	20	20
63-81	5	8	11	15	17	18	19	20	20	20
82-105	6	9	11	15	18	18	19	20	20	20
106-137	6	9	12	16	18	19	20	20	20	20
138-178	6	9	13	16	18	19	20	20	20	20
179-233	6	9	13	16	18	20	20	20	20	20
234-302	7	9	13	16	18	20	20	20	20	20
303-393	7	9	14	17	18	20	20	20	20	20
394-511	7	10	14	17	18	20	20	20	20	20
512-665	7	10	14	17	18	20	20	20	20	20
666-863	7	10	14	17	19	20	20	20	20	20
864-1123	8	12	15	17	19	20	20	20	20	20
1124-1460	8	12	15	17	19	20	20	20	20	20
1461-1898	8	13	15	18	19	20	20	20	20	20
1899-2467	8	14	16	18	20	20	20	20	20	20
>2467	8	14	16	18	20	20	20	20	20	20

Total Size Score (Social Component) 5.0

2.8 ABORIGINAL AND CULTURAL HERITAGE VALUES

Either or both Aboriginal or Cultural Values may be scored. However, the maximum score permitted for 2.8 is 30 points. Attach documentation.

2.8.1 ABORIGINAL VALUES

Full documentation of sources must be attached to the data record.

1)	Significant		=	30 points
2)	Not Significant		=	0
3)	Unknown	0.0	=	0
	Total:	0		

2.8.2 CULTURAL HERITAGE

1)	Significant		=	30 points
2)	Not Significant		=	0
3)	Unknown	0.0	=	0
	Total:	0		

Aboriginal Values/Cultural Heritage Score (maximum 30 points) 0.0

3.0 Hydrological Component

3.1 FLOOD ATTENUATION

Estimated&Calculated values can be obtained from G.I.S. data layers.

If the wetland is a complex including isolated wetlands, apportion the l00 points according to area. For example if 10 ha of a l00 ha complex is isolated, the isolated portion receives the maximum proportional score of 10. The remainder of the wetland is then evaluated out of 90.

Step 1: Detennination of Maximum Score

x	Wetland is located on one of the defined 5 large lakes or 5 major rivers (Go to Step 4)
	Wetland is entirely isolated (i.e. not part of a complex) (Go to Step 4)
	All other wetland types (Go through Steps 2,3 and 4B)

Step 2: Determination of Upstream Detention Factor (DF)

(a)	Wetland area (ha)		6.98	
(b)	Total area (ha) of upstream detention areas (include the wetland itself)		6.98	***estimate***
(c)	Ratio of (a):(b)		1.00	
(d)	Upstream detention factor: (c) x 2 = (maximum allowable factor = 1)	2.0	1.00	

Step 3: Determination of Wetland Attenuation Factor (AF)

(a)	Wetland area (ha)		6.98	
(b)	Size of catchment basin (ha) upstream of wetland (include wetland itself in catchment area)		0.00	***calculate***
(c)	Ratio of (a):(b)		#DIV/0!	
(d)	Wetland attenuation factor: (c) x 10 = (maximum allowable factor = 1)	#DIV/0!	#DIV/0!	

Step 4: Calculation of final score

(a)	Wetlands on large lakes or major rivers		0
(b)	Wetland entirely isolated		l00
(b)	All other wetlands --calculate as follows:		
(c	* Complex Formula - Isolated portion	100.00	
	Initial Score		100 *
	Upstream detention factor (DF) (Step 2)		1.00
	Wetland attenuation factor (AF) (Step 3)		#DIV/0!
	Final score: [(DF + AF)/2] x Initial score =		#DIV/0!
(c	* Final score:=	#DIV/0!	

*Unless wetland is a complex with isolated portions (see above).

Flood Attenuation Score (maximum l00 points) 0.0

3.2 WATER QUALITY IMPROVEMENT

3.2.1 SHORT TERM WATER QUALITY IMPROVEMENT

Step 1: **Determination of maximum initial score**

x	Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5a)
	All other wetlands (Go through Steps 2, 3, 4, and 5b)

Step 2: **Determination of watershed improvement factor (WIF)**

Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA= area of site type/total area of wetland)	Fractional Area				
FA of isolated wetland	0.00	x	0.5	=	0.00
FA of riverine wetland	0.45	x	1	=	0.45
FA of palustrine wetland with no inflow		x	0.7	=	0.00
FA of palustrine wetland with inflows	0.47	x	1	=	0.47
FA of lacustrine on lake shoreline	0.00	x	0.2	=	0.00
FA of lacustrine at lake inflow or outflow		x	1	=	0.00
			Sub Total:		0.92
			Sum (WIF cannot exceed 1.0)		0.92

Step 3: Determination of catchment land use factor (LUF)

(Choose the first category that fits upstream landuse in the catchment.)

1)	1.0	Over 50% agricultural and/or urban	1.0
2)		Between 30 and 50% agricultural and/or urban	0.8
3)		Over 50% forested or other natural vegetation	0.6

LUF (maximum 1.0) 1.00

Step 4: Determination of pollutant uptake factor (PUT)

Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the domininant live vegetation. (FA = area of vegetation type/total area of wetland)

	Fractional Area				
FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	0.15	x	0.75	=	0.11
FA of wetland with emergent, submergent or floating vegetation (re,be,ne,su,f,ff)	0.85	x	1	=	0.85
FA of wetland with little or no vegetation (u)	0.00	x	0.5	=	0.00
			Subtotal:		0.96
Estimate FA from air photos or use default factor of "0.75"			**Sum (PUT cannot exceed 1.0)**		0.96

Step 5: **Calculation of final score**

(a)	Wetland on large lakes or major rivers	0	
(b)	All other wetlands -calculate as follows		
	Initial score	60	
	Water quality improvement factor (WQF)	0.92	
	Land use factor (LUF)	1.00	
	Pollutant uptake factor (PUT)	0.96	
	Final score: 60 x WQF x LUF x PUT =	53.15	
	Short Term Water Quality Improvement Score (maximum 60 points)		53

3.2.2 LONG TERM NUTRIENT TRAP

Determine wetland type from aerial photos and soil type from OMAF soils maps.

Step 1:

0	Wetland on large lakes or 5 major rivers	0 points
	All other wetlands (proceed to Step 2)	

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

1)		Wetland located in a river mouth	10 points
2)		Wetland is a bog, fen or swamp with more than 50% of the wetland being covered with organic soil	10
3)		Wetland is a bog, fen or swamp with less than 50% of the wetland being covered with organic soil	3
4)		Wetland is a marsh with more than 50% of the wetland covered with organic soil	3
5)		None of the above	0
		Long Term Nutrient Trap Score (maximum 10 points)	0

3.2.3 GROUNDWATER DISCHARGE

The final score will be underestimated since some of the wetland characteristics cannot be scored

(Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points assign the maximum score of 30.)

Wetland Characteristics	Potential for Discharge					
	None to Little		Some		High	
Wetland type	1) Bog = 0		2) Swamp/Marsh = 2	2	3) Fen = 5	
Topography	1) Flat/rolling = 0	0	2) Hilly = 2		3) Steep = 5	
Wetland Area: Upslope Catchment Area	Large (>50%) = 0		Moderate (5-50%) = 2		Small <(5%) = 5	5
Lagg Development	1) None found = 0	0	2) Minor = 2		3) Extensive = 5	
Seeps	1) None = 0	0	2) = or < 3 seeps = 2		3) > 3 seeps = 5	
Surface marl deposits	1) None = 0	0	2) = or < 3 sites = 2		3) > 3 sites = 5	
Iron precipitates	1) None = 0	0	2) = or < 3 sites = 2		3) > 3 sites = 5	
Located within 1 km of a major aquifer	N/A = 0	0	N/A = 0		Yes = 10	
Totals		0		2		5

(Scores are cumulative maximum score 30 points)

Groundwater Discharge Score (maximum 30 points) 7

3.3 CARBON SINK

Choose only one of the following

1)	Bog, fen or swamp with more than 50% coverage by organic soil	5	5 points
2)	Bog, fen or swamp with between 10 to 49% coverage by organic soil		2
3)	Marsh with more than 50% coverage by organic soil		3
4)	Wetlands not in one of the above categories		0

Carbon Sink Score (maximum 5 points) 5

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3.4 SHORELINE EROSION CONTROL

Step 1: ***Determine from ortho-aerial photography*** Score

	Wetland entirely isolated or palustrine	0
x	Any part of the Wetland riverine or lacustrine (proceed to Step 2)	

Step 2:

Choose the **one** characteristic that best describes the shoreline vegetation (see text for a definition of shoreline)

			Score
1)	15	Trees and shrubs	15
2)		Emergent vegetation	8
3)		Submergent vegetation	6
4)		Other shoreline vegetation	3
5)		No vegetation	0

Shoreline Erosion Control Score (maximum 15 points) 15

3.5 GROUND WATER RECHARGE

3.5.1 WETLAND SITE TYPE

Score

(a) Wetland > 50% lacustrine (by area) or located on one of the five major rivers — 0

(b) Wetland not as above. Calculate final score as follows:
(FA= area of site type/total area of wetland)

	Fractional Area			
FA of isolated or palustrine wetland	0.47	x 50	=	23.6
FA of riverine wetland	0.53	x 20	=	10.5
FA of lacustrine wetland (wetland <50% lacustrine)	0.00	x 0	=	0.0
		Subtotal:		34.2

Ground Water Recharge Wetland Site Type Component Score (maximum 50 points) 34

3.5.2 WETLAND SOIL RECHARGE POTENTIAL

Determine from OMAF soils maps.

(Circle only **one** choice that best describes the hydrologic soil class of the area surrounding the wetland being evaluated.)

Dominant Wetland Type	1) Sand, loam, gravel, till		2) Clay or bedrock	
1) Lacustrine or on a major river	0		0	
2) Isolated	10		5	
3) Palustrine	7	7	4	
4) Riverine (not a major river)	5		2	
Totals		7		0

Ground Water Recharge Wetland Soil Recharge Potential Score (maximum 10 points) 7

4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

4.1.1 WETLANDS

Site District 7-5

Presence of wetland type (check one or more)

	Bog
	Fen
x	Swamp
x	Marsh

Score for rarity within the landscape and rarity of the wetland type. Score for rarity of wetland type is cumulative (maximum 80 points) based on presence or absence.

Slte District	Score for Rarity within the Landscape	Score for Rarity of Wetland Type			
		Marsh	Swamp	Fen	Bog
7-1	60	0	60	80	80
7-2	60	0	0	80	80
7-3	60	0	0	80	80
7-4	80	0	0	80	80
7-5	**60**	**20**	0	80	80
7-6	80	30	0	80	80

Rarity within the Landscape Score (maximum 80 points)	60
Rarity of Wetland Type Score (maximum 80 points)	20

The updated scores for rarity in Site Region 7-5 are in the stages of review and still require official confirmation.(June 8, 2004)

4.1.2 SPECIES

4.1.2.1 BREEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

	Name of species		Source of information
1)	None known		
2)			
3)			
4)			
5)			
	Total:	0	

Attach documentation.

Scoring:

For each species 250 points

(score is cumulative, no maximum score)

Breeding Habitat for Endangered or Threatened Species Score (no maximum) 0

4.1.2.2 TRADITIONAL MIGRATION OR FEEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

	Name of species		Source of information
1)	None Known		
2)			
3)			
4)			
5)			
	Total:	0	

Attach documentation.
Scoring:

For one species 150 points
For each additional species 75

(score is cumulative, no maximum score)

Traditional Habitat for Endangered Species Score (no maximum) 0

4.1.2.3 PROVINCIALLY SIGNIFICANT ANIMAL SPECIES

	Name of species	Source of information
1)	None Known	
2)		
3)		
4)		
5)		
6)		
7)		
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		

Attach separate list if necessary; Attach documentation

Scoring:

Number of provincially significant animal species in the wetland:

1	species = 50 points		14 species	=	154
2	species = 80		15 species	=	156
3	species = 95		16 species	=	158
4	species = 105		17 species	=	160
5	species = 115		18 species	=	162
6	species = 125		19 species	=	164
7	species = 130		20 species	=	166
8	species = 135		21 species	=	168
9	species = 140		22 species	=	170
10	species = 143		23 species	=	172
11	species = 146		24 species	=	174
12	species = 149		25 species	=	176
13	species = 152				

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

(no maximum score)

Provincially Significant Animal Species Score (no maximum)

4.1.2.4 PROVINCIALLY SIGNIFICANT PLANT SPECIES

(Scientific names must be recorded)

	Common Name	Scientific Name	Source of information
1)	none Known		
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			

Attach separate list if necessary; Attach documentation

Scoring:

Number of provincially significant plant species in the wetland:

1 species	=	50 points	14 species	=	154
2 species	=	80	15 species	=	156
3 species	=	95	16 species	=	158
4 species	=	105	17 species	=	160
5 species	=	115	18 species	=	162
6 species	=	125	19 species	=	164
7 species	=	130	20 species	=	166
8 species	=	135	21 species	=	168
9 species	=	140	22 species	=	170
10 species	=	143	23 species	=	172
11 species	=	146	24 species	=	174
12 species	=	149	25 species	=	176
13 species	=	152			

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species Score (no maximum) _____

4.1.2.5 REGIONALLY SIGNIFICANT SPECIES (SITE REGION)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

SIGNIFICANT IN SITE REGION:

.

	Common Name	Scientific Name	Source of information
1)	None Known		
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			

Attach separate list if necessary .Attach documentation.

Scoring:

No. of species significant in Site Region

1 species	=	20	6 species	=	55
2 species	=	30	7 species	=	58
3 species	=	40	8 species	=	61
4 species	=	45	9 species	=	64
5 species	=	50	10 species	=	67

Add one point for every species past 10. (no maximum score)

Regionally Significant Species Score (Site Region)(no maximum) 0

Additional Species							
Common Name	**Scienctific Name**	**S Rank**	**G Rank**	**Wet CoE**	**Tracked**	**Poly. Loc**	**Comments**
Plants							
Silver Maple	*Acer saccharinum*	S5	G5	-3	N		
Black Willow	*Salix nigra*	S4?	G5	-5	N		noted as uncommon in *Distribution & Status of the vascular plants of SW ON* , MJ Oldham, 1993. MNR
Sandbar Willow	*Salix exigua*	S5	G5	-5	N		
Hawthorn spp.	*Crataegus spp*						
Red-osier dogwood	*Cornus stolonifera*	S5	G5	-3	N		
Shining Willow	*Salix lucida*	S5	G5	-4	N		noted as uncommon in *Distribution & Status of the vascular plants of SW ON* , MJ Oldham, 1993. MNR
Eastern Cottonwood	*Populus deltoides*	S5	G5T?	-1			
Black Ash	*Fraxinus nigra*	S5	G5	-4	N		
Peachleaf Willow	*Salix amigdaloides*	S5	G5	-3	N		noted as uncommon in *Distribution & Status of the vascular plants of SW ON* , MJ Oldham, 1993. MNR
Heartleaf Willow	*Salix eriocephala*	S5	G5	-3	N		
Wild Rose	*Rosa sp.*						
Currants	*Ribes sp.*						
Wild mint	*Mentha arvensis*	S5		-3	N		
a Vetch	*unknown*						
Jewelweed	*Impatiens spp.*	S5		-3			
Cow Parsnip	*Heracleum maximum*	S5	G5	-3	N		noted as uncommon in *Distribution & Status of the vascular plants of SW ON* , MJ Oldham, 1993. MNR
Canada Bluejoint	*Calamagrostis canadensis*	S5	G5	-5	N		
Marsh Timothy	*Muhlenbergia glomerata*	S5	G5	-4	N		
Reed Canary Grass	*Phalaris arundinacea*	S5	G5	-4	N		
Awl-Fruited Sedge	*Carex stipata*	S5	G5	-5	N		
Fox Sedge	*carex vulpinoidea*	S5	G5	-5	N		
Bebbs Sedge	*Carex bebbii*	S5	G5	-5	N		
Narrow leaved Cattail	*Typha angustifolia*	SE5	G5	-5	N		
Phragmites	*Phragmites australis*	S5	G5	-4	N		
Water Horehoound	*Lycopus americanus*	S5	G5	-5	N		
Virginia Water Leaf	*Hydrophyllum virginianum*	S5	G5	-2	N		
Wild Yam	*Dioscorea villosa*	S4	G5	1	N		
Summer Grape	*Vitis aestivalis*	S4	G5	3	N		
Dame's Rocket	*Hesperis matronalis*	SE5	G4G5	5	N		
Yellow Iris	*Iris pseudacorus*	SE3	G?	-5	N		
Virginia Creeper	*Parthenocissus quinquefolia*	S4	G5	1	N		
Dudleys rush	*Juncus dudleyi*	S5	G5	0	N		
Beach Pea	*Lathyrus japonicus*	S4	G5	4	N		noted as rare to uncommon in *Distribution & Status of the vascular plants of SW ON* , MJ Oldham, 1993. MNR
Rough hair grass	*Agrostis scabra*						
tickle grass							
Amphibians							
Leopard Frog	*Rana pipens*	S5	G5	W	N		
Mammals							
Raccoon	*Procyon lotor*	S5	G5		N		
White-tailed Deer	*Odocoileus virginianus*	S5	G5		N		
Birds							
American Robin	*Turdus migratorius*	S5B, SZN	G5		N		
Ring-billed Gull	*Larus delawarensis*	S5B, SZN	G5		N		
Killdeer	*Charadrius vociferus*	S5B, SZN	G5		N		
Swamp Sparrow	*Melospiza georgiana*	S5B, SZN	G5		N		
Tree Swallow	*Tachycineta bicolor*	S5B, SZN	G5		N		
Red-winged Blackbird	*Agelaius phoeniceus*	S5B, SZN	G5		N		
Common Grackle	*Quiscalus quiscula*	S5B, SZN	G5		N		
Common Snipe	*Gallinago gallinago*	S5B, SZN	G5		N		
American gold finch	*Carduelis tristis*	S5B, SZN	G5		N		
Reptiles							
Insects							
Monarch Butterfly	*Danaus plexippus*	S4	G4		N		
Mussels & Crustations							
Crayfish sp.							
Fish							
Emerald Shiner	*Notropis atherinoides*	S5	G5	W	N		
White Sucker	*Catostomus commersoni*	S5	G5	W	N		
Pumpkinseed	***Lepomis gibbosus***	S5	G5	W	N		
Black Crappie	*Pomoxis nigromaculatus*	S4	G5	W	N		
Brown Bullhead	*Ameiurus nebulosus*	S5	G5	W	N		
Spottail Shiner	*Notropis hudsonius*	S5	G5	W	N		
Fathead Minnow	*Pimephales promelas*	S5	G5	W	N		
Brook Stickleback	*Culaea inconstans*	S5	G5	W	N		

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4.2.1.6 LOCALLY SIGNIFICANT SPECIES (SITE DISTRICT)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

	Common Name	Scientific Name	Source of information
1	Black Willow	Salix nigra	*see additional species list
2	Cow Parsnip	Heracleum maximum	*see additional species list
3	Shinning Willow	Salix lucida	*see additional species list
4	Peachleaf Willow	Salix amygdaloides	*see additional species list
5	Beach Pea	Lathyrus japonicus	*see additional species list
6			

Attach separate list if necessary .Attach documentation.

Scoring:

No. of species significant in Site District

1 species	=	10	6 species	=	41
2 species	=	17	7 species	=	43
3 species	=	24	8 species	=	45
4 species	=	31	9 species	=	47
5 species	**=**	**38**	10 species	=	49

For each significant species over 10 in the wetland, add 1 point.

Locally Significant Species Score (Site District) (no maximum) 38

4.2 SIGNIFICANT FEATURES AND/OR FISH & WILDLIFE HABITAT

4.2.1 NESTING OF COLONIAL WATERBIRDS

Status	Name of species	Source of Information	Score	
1) Currently nesting			50	
2) Known to have nested within past 5 years			25	
3) Active feeding area (Do not include feeding by great blue herons)			15	
4) None known			0	0

Consult the Ontario Heronry database at Bird Studies Canada. Subtotal: 0

Attach documentation (nest locations etc., if known)

Score highest applicable category only; maximum score 50 points.

Score for Nesting Colonial Waterbirds (maximum 50 points) 0

4.2.2. WINTER COVER FOR WILDLIFE

Score "locally significant" if trees & shrubs are present, also consult District deer yard data.

	(Check only highest level of significance) **(one only)**		Score
1)		Provincially significant	l00
2)		Significant in Site Region	50
3)		Significant in Site District	25
3)	10	Locally significant	10
4)		Little or poor winter cover present	0

Source of information: Field Observations, Erin Sanders, Jason Webb

Winter Cover for Wildlife Score (maximum l00 points) 10

4.2.3 WATERFOWL STAGING AND/OR MOULTING

(Check only highest level of significance for both staging and moulting; score is cumulative across columns, maximum score 15(

		Staging	Score (one only)	Moulting	Score (one only)
1)	Nationally significant		150		150
2)	Provincially significant		100		l00
3)	Regionally significant		50		50
4)	Known to occur		10		10
5)	Not possible	0	0	0	0
6)	Unknown		0		0
	Total:	0		0	
	Subtotal:		0		

Source of information: Filed Observations: Erin Sanders, Jason Webb

Waterfowl Moulting and Staging Score (maximum 150 points) 0

4.2.4 WATERFOWL BREEDING

		(Check only highest level of significance)	Score
1)		Provincially significant	l00
2)		Regionally significant	50
3)		Habitat suitable	10
4)	0	Habitat not suitable	0

Source of information: Filed Observations: Erin Sanders, Jason Webb

Waterfowl Breeding Score (maximum lOO points) 0

4.2.5 MIGRATOR PASSERINE, SHOREBIRD OR RAPTOR STOPOVER AREA

(check highest applicable category)

1)		Provincially significant	l00
2)		Significant in Site Region	50
3)	10	Significant in Site District	10
4)		Not significant	0

Source of information: Filed Observations: Erin Sanders, Jason Webb

Passerine, Shorebird or Raptor Stopover Score (maximum 100 points) 10

4.2.6 FISH HABITAT

Consult District Fisheries files. If fish are present in the wetland, score 15 or 25 points depending on the size of the fish habitat present.

4.2.6. Spawning and Nursery Habitat

Table 5. Area Factors for Low Marsh, High Marsh, and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 1:

_____ Fish habitat is not present within the wetland (Score = 0)

x Fish habitat is present within the wetland (Go to Step 2)

Step 2: Choose only one option

1) x Significance of the spawning and nursery habitat within the wetland is known (Go to Step 3)

2) _____ Significance of the spawning and nursery habitat within the wetland is not known (Go through Steps 4, 5, 6 and 7)

Step 3: Select the highest appropriate category below attach documentation:

1)	_____	Significant in Site Region	l00 points
2)	_____	Significant in Site District	50
3)	_____	Locally Significant Habitat (5.0+ ha)	25
4)	15	Locally Significant Habitat (<5.0 ha)	15

Score for Spawning and Nursery Habitat (maximum score 100 points) 15

Refer to Long point district fisheries files - Stelco creek.

Step 4: **Proceed to Steps 4 to 7 only if Step 3 was not answered.**

(**Low Marsh**: marsh area from the existing water line out to the outer boundary of the wetland)

_____ Low marsh not present (Continue to Step 5)
_____ Low marsh present (Score as follows)

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16 Table 16-2) for each Low Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	0.0
2	Shortgrass-Sedge				11	0.0
3	Cattail-Bulrush-Burreed				5	0.0
4	Arrowhead-Pickerelweed				5	0.0
5	Duckweed				2	0.0
6	Smartweed-Waterwillow				6	0.0
7	Waterlily-Lotus				11	0.0
8	Waterweed-Watercress				9	0.0
9	Ribbongrass				10	0.0
10	Coontail-Naiad-Watermilfoil				13	0.0
11	Narrowleaf Pondweed				5	0.0
12	Broadleaf Pondweed				8	0.0
Sub Total Score (maximum 75 points)						0.0
Total Score (maximum 75 points)						0.0

Step 5: (**High Marsh**: area from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.)

_____ High marsh not present (Continue to Step 6)
_____ High marsh present (Score as follows)

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each High 1Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16 Table 16-2) for each High Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	0.0
2	Shortgrass-Sedge				11	0.0
3	Cattail-Bulrush-Burreed				5	0.0
4	Arrowhead-Pickerelweed				5	0.0
Sub Total Score (maximum 25 points)						0.0
Total Score (maximum 25 points)						0.0

Step 6: (**Swamp**: Swamp communities containing fish habitat,either seasonally or permanently. Determine the total area of seasonally flooded swamps and permanently flooded swamps containing fish habitat.)

_____ Swamp containing fish habitat not present (Continue to Step 7)
_____ Swamp containing fish habitat present (Score as follows)

Swamp containing fish Habitat	Present (check)	Total area (ha)	Area Factor (see Table 5)	Score	TOTAL SCORE (factor x score)
Seasonally flooded				10	0.0
Permanently flooded				10	0.0
Sub SCORE (maximum 20 points)					0.0
SCORE (maximum 20 points)					0.0

Step 7: Calculation of final score

Score for Spawning and Nursery Habitat (Low Marsh) (maximum 75) = 0.0

Score for Spawning and Nursery Habitat (High Marsh) (maximum 25) = 0.0

Score for Swamp Containing Fish Habitat (maximum 20) = 0.0

Subtotal: 0.0

Sum (maximum score 100 points) = 0.0

4.2.6.2 Migration and Staging Habitat ***Score only if information on fish migration and staging exists, e.g. migration of northern pike through a wetland to access spawning areas.***

Step 1:

1) ____ Staging or Migration Habitat is not present in the wetland (Score = 0)

2) ____ Staging or Migration Habitat is present in the wetland significance of the habitat is known (Go to Step 2)

3) x Staging or Migration Habitat is present in the wetland significance of the habitat is not known (Go to Step 3)

NOTE: Only one of Step 2 or Step 3 is to be scored.

Step 2: Select the highest appropriate category below, attach documentation:

		Score
1)	Significant in Site Region	25 points
2)	Significant in Site District	15
3)	Locally Significant	10
4)	Fish staging and/or migration habitat present,but not as above	5

Score for Fish Migration and Staging Habitat (maximum score 25 points) 0

Step 3: Select the highest appropriate category below based on presence of the designated site type (does not have to be dominant). See Section 1.1.3. Note name of river for 2) and 3).

		Score
1)	25 Wetland is riverine at rivermouth or lacustrine at rivermouth	25 points
2)	Wetland is riverine,within 0.75 km of rivermouth	15
3)	Wetland is lacustrine,within 0.75 km of rivermouth	10
4)	Fish staging and/or migration habitat present, but not as above	5

Score for Staging and Migration Habitat (maximum score 25 points) 25

4.3 ECOSYSTEM AGE

(Fractional Area = area of wetland/total wetland area)

	Fractional Area			Scoring
Bog	0.00	x	25 =	0.0
Fen, treed to open on deep soils floating mats or marl		x	20 =	0.0
Fen, on limestone rock		x	5 =	0.0
Swamp	0.15	x	3 =	0.5
Marsh	0.85	x	0 =	0.0
		Sub Total:		0.5

Ecosystem Age Score (maximum 25 points) 0.5

4.4 GREAT LAKES COASTAL WETLANDS

Score for coastal (see text for definition) wetlands only

Choose one only

0	wetland < 10 ha	=	0 points
	wetland 10- 50 ha	=	25
	wetland 51 -lOO ha	=	50
	wetland > 100 ha	=	75

Great Lakes Coastal Wetlands Score (maximum 75 points) 0

5.0 EXTRA INFORMATION

5.1 PURPLE LOOSESTRIFE

x Absent/Not seen

____ Present

(a) One location in wetland ____
Two to many locations ____

Abundance code
(b) (1 < 20 stems ____
(2 20-99 stems ____
(3 100-999 stems ____
(4 >1000 stems ____

5.2 SEASONALLY FLOODED AREAS

Check one or more

Ephemeral	(less than 2 weeks)	
Temporal	(2 weeks to 1 month)	x
Seasonal	(1 to 3 months)	x
Semi-permanent	(>3 months)	x
No seasonal flooding		

5.3 SPECIES OF SPECIAL SIGNIFICANCE

5.3.1 Osprey

Present and nesting	
Known to have nested in last 5 yr	
Feeding area for osprey	
Not as above	x

5.3.2 Common Loon

Nesting in wetland	
Feeding at edge of wetland	
Observed or heard on lake or river adjoining the wetland	
Not as above	x

Southern Ontario Wetland Evaluation, Data and Scoring Record **March 1993**

Wetlands Manual

INVESTIGATORS	AFFILIATION
Erin Sanders	Aylmer MNR
Jason Webb	Aylmer MNR

DATES WETLAND VISITED

June 6th 2007

DATE THIS EVALUATION COMPLETED: **June 11th 2007**

ESTIMATED TIME DEVOTED TO COMPLETING THE FIELD SURVEY IN "PERSON HOURS"

3.5 hours

WEATHER CONDITIONS

Good, Sunny warm with a light breeze from the south

i) at time of field work

(Continue in the space below if necessary)

ii) summer conditions in general typical

OTHER POTENTIALLY USEFUL INFORMATION:

Saw truck with aquarium for baitfish collection purposes. Approximately 8 people collecting baitfish for 30 mins.

CHECKLIST OF PLANT AND ANIMAL SPECIES RECORDED IN THE WETLAND:

Attach a list of all flora and fauna observed in the wetland.

*Indicate if voucher specimens or photos have been obtained, where located, etc.

Southern Ontario Wetland Evaluation **March 1993**

Wetlands Manual

WETLAND EVALUATION SCORING RECORD

WETLAND NAME AND/OR NUMBER	Stelco Creek Wetland (FS 1)

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

1.1.1	Growing Degree-Days/Soils	26.0	
1.1.2	Wetland Type	13.9	
1.1.3	Site Type	3.1	
	Total for Productivity		43

1.2 BIODIVERSITY

1.2.1	Number of Wetland Types	13.0	
1.2.2	Vegetation Communities (maxixmum 45)	11.5	
1.2.3	Diversity of Surrounding Habitat (maximum 7)	7.0	
1.2.4	Proximinty to Other Wetlands	8.0	
1.2.5	Interspersion	9.0	
1.2.6	Open Water Type	8.0	
	Total for Biodiversity		57
	Sub Total for Biodiversity	57	

1.3 SIZE (Biological Component) 7

Sub Total:	107
TOTAL FOR BIOLOGICAL COMPONENT (not to exceed 250)	107

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

2.1.1	Wood Products	0
2.1.2	Wild Rice	0
2.1.3	Commercial Fish	12
2.1.4	Bullfrogs	0
2.1.5	Snapping Turtles	0
2.1.6	Furbearers	12

Total for Economically Valuable Products: 24

2.2 RECREATIONAl ACTIVITIES (maximum 80): 16

2.3 LANDSCAPE AESTHETICS

2.3.1	Distinctness	3
2.3.2	Absence of Human Disturbance	4

Total for Landscape Aesthetics: 7

2.4 EDUCATION AND PUBLIC AWARENESS

2.4.1	Educational Uses	0
2.4.2	Facilities and Programs	0
2.4.3	Research and Studies	5

Total for Education and Public Awareness: 5

2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT: 16

2.6 OWNERSH1P: 4

Subtotal for Social Component: 56.0

2.7 SIZE (Social Component): 5

2.8 ABORIGINAL AND CULTURAL VALUES: 0

Sub Total: 77

TOTAL FOR SOCIAL COMPONENT (not to exceed 250): 77

Southem Ontario Wetland Evaluation, Score Summary **March 1993**

Wetlands Manual

3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION		0
3.2 WATER QUALITY IMPROVEMENT		
3.2.1 Short Term Improvement	53.2	
3.2.2 Long Term Improvement	0.0	
3.2.3 Groundwater Discharge (maximum 30)	7.0	
Total for Water Quality Improvement		60
3.3 CARBON SINK		5
3.4 SHORELINE EROSION CONTROL		15
3.5 GROUNDWATER RECHARGE		
3.5.1 Site Type	34.18	
3.5.2 Soils	7.0	
Total for Groundwater Recharge		41
Sub Total:		121
TOTAL FOR HYDROLOGICAL COMPONENT (not to exceed 250)		121

4.0 SPECIAL FEATURES

4.1 RARITY

4.1.1 Wetlands

4.1.1.1	Rarity within the Landscape	60.0
4.1.1.2	Rarirty of Wetland Type (maximum 80)	20.0
	Total for Wetland Rarity	80

4.1.2 Species

4.1.2.1	Endangered or Threatened Species Breeding	0.0
4.1.2.2	Traditional Use by Endangered or Threatened Species	0.0
4.1.2.3	Provincially Significant Animals	0.0
4.1.2.4	Provincially Significant Plants	0.0
4.1.2.5	Regionally Significant Species	0.0
4.1.2.6	Locally Significant Species	38.0
	Total for Species Rarity	38

4.2 SIGNIFICANT FEATURES OR HABITAT

4.2.1	Colonial Waterbirds	0.0
4.2.2	Winter Cover for Wildlife	10.0
4.2.3	Waterfowl Staging and Moulting	0.0
4.2.4	Waterfowl Breeding	0.0
4.2.5	Migratory Passerine, Shorebird or Raptor Stopover	10.0
4.2.6	Fish Habitat	40.0
	Total for Significant Features and Habitat	60

4.3 ECOSYSTEM AGE 0

4.4 GREAT LAKES COASTAL WETLANDS 0

Sub Total: 178

TOTAL FOR SPECIAL FEATURES (maximum 250) 178

Southern Ontario Wetland Evaluation, Score Summary **March 1993**

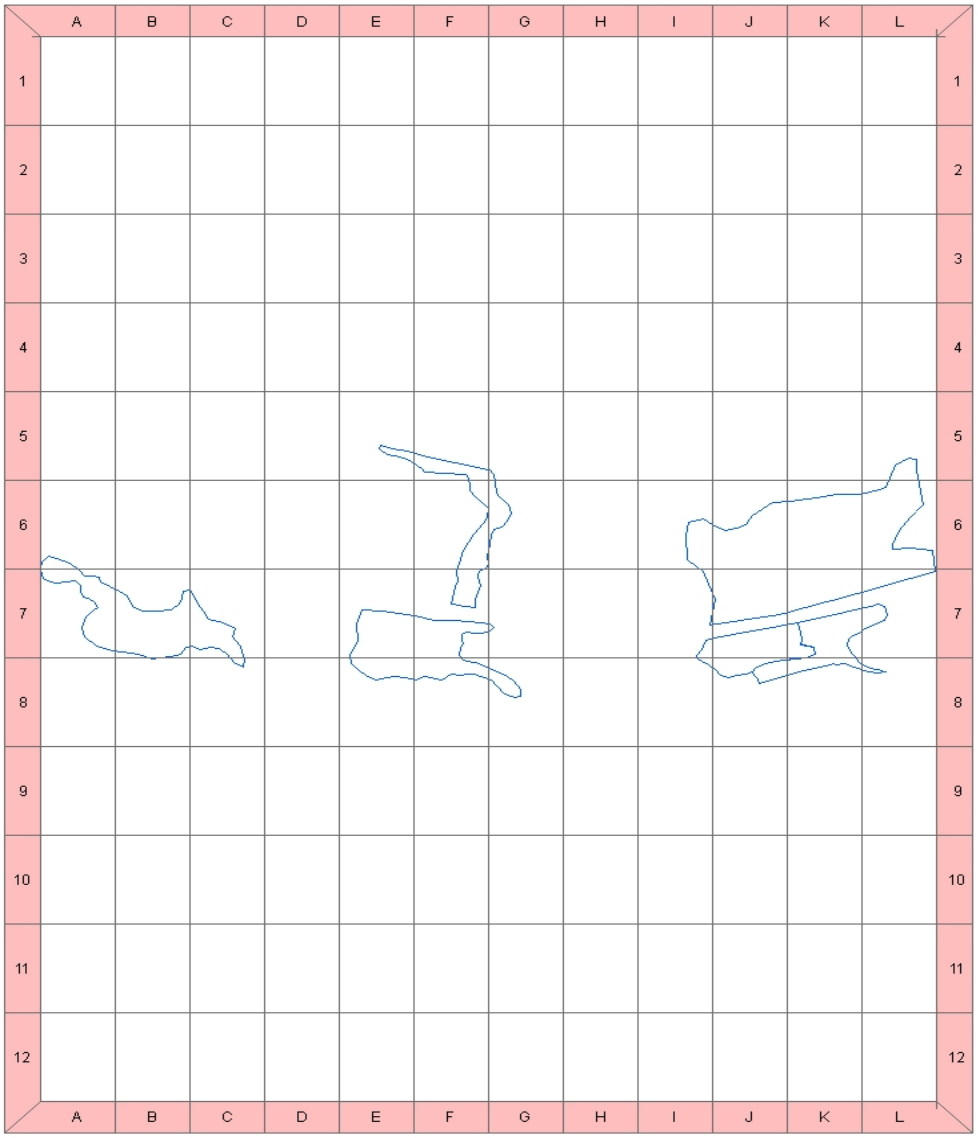
Wetlands Manual

SUMMARY OF EVALUATION RESULT

Wetland	Stelco Creek Wetland (FS 1)
TOTAL FOR 1.0 BIOLOGICAL COMPONENT	107
TOTAL FOR 2.0 SOCIAL COMPONENT	77
TOTAL FOR 3.0 HYDROLOGICAL COMPONENT	121
TOTAL FOR 4.0 SPECIAL FEATURES COMPONENT	178
WETLAND TOTAL	483

INVESTIGATORS	AFFILIATION
Erin Sanders	Aylmer MNR
Jason Webb	Aylmer MNR

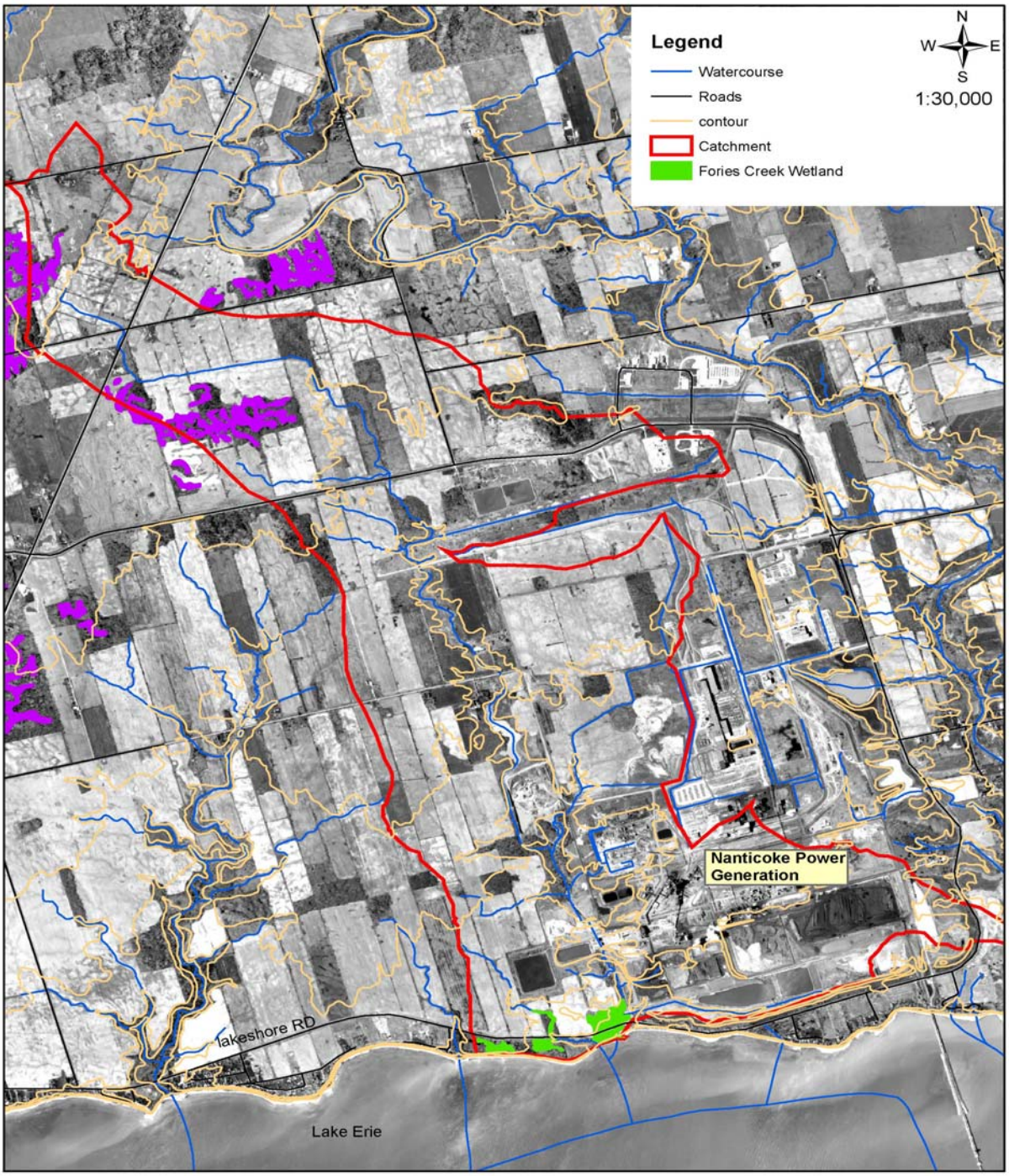
DATE June 11th 2007



	Across	Down
1	0	2
2	0	2
3	0	0
4	0	0
5	4	4
6	6	7
7	8	0
8	0	0
9	0	6
10	0	5
11	0	6
12	0	1
	18	33

Total **51**

Catchment Map



Polygon ID Map

Vegetation Communities

Comm Sp Code	Comm Nu Code	Vegetation Forms	# Forms	Species	Comments
S5	1 & 2	h, ts, ls, gc, ne, re, su	7	Silver Maple, black willow, sandbar willow, hawthorne sp, red-osier dogwood, wild mint, vetch, jewelweed, cow parsnip, canada bluejoint, marsh timothy, reed canary grass, carex sp., all sedge, fox sedge, bebbs sedge, narrowleaved cattail, unknown submergent planT, phragmites.	
S4	3	h, ts, ls, gc, ne, be, re	7	Black ash, shining willow, peachleaf willow, hawthorne spp., res-osier dogwood, wild rose, currants, water horehound, virginia water leaf, wild yam, summer grape, phlox, marsh timothy, all sedge, bebbs sedge, yellow iris, phragmites.	
M1	4	ls, gc, ne	3	red-osier dogwood, wild rose, summer grape, virginia creeper, leaks, phlox, marsh timothy.	
M2	5	h, ls, gc, ne	4	Black ash, red-osier dogwood, summer grape, jewelweed, marsh timothy, poa spp., dudleys rush, bebbs sedge	
M3	7	ls, gc, ne, re	4	red-osier dogwood, wild mint, vetch, jewelweed, cow parsnip, canada bluejoint, marsh timothy, reed canary grass, carex sp., all sedge, fox sedge, bebbs sedge, narrowleaved cattail, phragmites.	
M3a	7	ls, gc, ne, re	4	red-osier dogwood, wild mint, vetch, jewelweed, cow parsnip, canada bluejoint, marsh timothy, reed canary grass, carex sp., all sedge, fox sedge, bebbs sedge, narrowleaved cattail, phragmites.	

APPENDIX

C SAR SCREENING

Table 1: Endangered and Threatened species screening.

Species	ESA Status[1]	ESA Protection[2]	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Birds							
Bank Swallow (*Riparia riparia*)	THR	Species and General Habitat Protection	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of large lakes and rivers (MNRF Guelph - Waterloo List, 2014).	The presence of a watercourse and adjacent Lake Erie shoreline suggests potential nesting opportunities within and outside of the site for this species. This species may forage over the site.	SAR Habitat Assessment.	This species was not detected.	Low - suitable breeding habitat may be present adjacent to Centre Creek; however, the Lake Erie shoreline likely provides more suitable habitat.
Barn Swallow (*Hirundo rustica*)	THR	Species and General Habitat Protection	Prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in road culverts; on rock faces and in caves etc. (MNRF Guelph - Waterloo List, 2014).	This species may forage over the site.	SAR Habitat Assessment.	This species was not detected.	Low - no nests or evidence of nesting was observed within the study area. No suitable structures are present on the subject site.
Bobolink (*Dolichonyx oryzivorus*)	THR	Species and General Habitat Protection	Generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands (MNRF Guelph - Waterloo List, 2014).	Suitable breeding habitat may be provided by the Dry – Moist Old Field Meadow and Forb Mineral Meadow Marsh within the study site. This species may forage over the site.	SAR Habitat Assessment.	This species was not detected.	Moderate - suitable breeding habitat may be present within the Dry – Moist Old Field Meadow and Forb Mineral Meadow Marsh habitat.
Chimney Swift (*Chaetura pelagica*)	THR	Species and General Habitat Protection	Historically found in deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer; now most are found in urban areas in large uncapped chimneys (MNRF Guelph - Waterloo List, 2014).	Suitable cavity trees may be present within the subject site, or the species may migrate through the study area.	SAR Habitat Assessment.	This species was not detected.	Low - no structures containing nests or uncapped chimneys were observed within the study area.
Eastern Meadowlark (*Sturnella magna*)	THR	Species and General Habitat Protection	Generally prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps (MNRF Guelph - Waterloo List, 2014).	Suitable breeding habitat may be provided by the Dry – Moist Old Field Meadow and Forb Mineral Meadow Marsh within the study site. This species may forage over the site.	SAR Habitat Assessment.	This species was not detected.	Moderate - suitable breeding habitat may be present within the Dry – Moist Old Field Meadow and Forb Mineral Meadow Marsh habitat.
Fish							

Species	ESA Status[1]	ESA Protection[2]	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Silver Chub (*Macrhybopsis storeriana*)	THR	Species and General Habitat Protection	Throughout most of its North American range, Silver chub prefers medium to large rivers with substantial current and silt, sand or gravel bottoms, but in Ontario it is only found in the Great Lakes. It is usually found in depths between seven and 12 metres, and is believed to spawn in May and June in open water areas. (MNRF Species Profile Online 2015).	Lake Erie is directly connected to Centre Creek, which flows through the subject site; however, the species requires habitat not present on site (water depths of seven to 12 m).	SAR Habitat Assessment.	This species was not detected.	None – this species requires habitat characteristics that are not present within the subject site or study area.
Herpetiles							
Eastern Foxsnake (Carolinian and Great Lakes/St.Lawrence) (*Pantherophis gloydi*)	END	Species Protection and Habitat Regulation	Generally prefers forests, early successional (old field, prairie, marsh, dune-shoreline) habitat during the active season. Hedgerows bordering farm fields and riparian zones along drainage canals are regularly used. The species in most often found near water (MNRF Guelph - Haldimand List 2015).	Forest habitat is limited to the southeast edges of the subject site. Hedgerows, Dry – Moist Old Field Meadow and marsh habitat surrounding an unnamed tributary and Centre Creek may provide suitable habitat.	SAR Habitat Assessment.	This species was not detected.	Moderate – hedgerows adjacent to farm fields and old field and marsh habitat adjacent to watercourses may provide suitable habitat on the subject site.
Gray Ratsnake (Carolinian) (*Pantherophis spiloides*)	END	Species Protection and Habitat Regulation	Generally associated with deciduous forests, with a preference for a mosaic of forest and open habitats, such as fields and rocky outcrops (MNRF Guelph - Haldimand List 2015).	Deciduous forest is limited to the southeast edges of the subject site.	SAR Habitat Assessment.	This species was not detected.	Moderate – forested habitat adjacent to farm fields and old field and marsh habitat may provide suitable habitat on the subject site.
Queensnake (*Regina septemvittata*)	END	Species Protection and Habitat Regulation	Generally require a permanent body of water, flowing or still, with a temperature remaining at or above 18.3°C throughout most of the active season; abundant cover, such as flat rocks submerged and/or on the bank; and an abundance of crayfish. Other important habitat features may include rocky, gravelly, or slate stream-bed substrates, swift to moderate current, and woodland surroundings (MNRF Guelph - Waterloo List, 2014).	Lake Erie is connected to Centre Creek, which is a warm watercourse that flows through the subject site. Suitable habitat determined by the substrate and cover is only present within 100 m north of New Lakeshore Road. While crayfish are present within Centre Creek the abundance is unknown.	SAR Habitat Assessment.	This species was not detected.	Low - limited suitable habitat within the study area; however, the larger natural area surrounding Lake Erie may be more suitable to the species.
Mammals							

Species	ESA Status[1]	ESA Protection[2]	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Little Brown Bat (Little Brown Myotis) (*Myotis lucifugus*)	END	Species and General Habitat Protection	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) (MNRF Guelph - Waterloo List, 2014).	Potentially suitable wooded and forested habitats are present within the site. The surrounding landscape is dominated by industrial land-use and agriculture, with availability of suitable bat foraging habitats provided by adjacent treed riparian corridor, SWM ponds and lacustrine habitat south of the Site and along the Lake Erie shoreline.	SAR Habitat Assessment.	This species was not detected.	Moderate - removal of trees may impact potential day-roosting opportunities for bats. Impacts can be minimized by restricting removal of trees and structures outside of the bat hibernation period (between October 1st and March 31st).
Northern Long-eared Bat (Northern Myotis) (*Myotis septentrionalis*)	END	Species and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)(MNRF Guelph - Waterloo List, 2014).	Potentially suitable wooded and forested habitats are present within the site. The surrounding landscape is dominated by industrial land-use and agriculture, with availability of suitable bat foraging habitats provided by adjacent treed riparian corridor, SWM ponds and lacustrine habitat south of the Site and along the Lake Erie shoreline.	SAR Habitat Assessment.	This species was not detected.	Moderate - removal of trees may impact potential day-roosting opportunities for bats. Impacts can be minimized by restricting removal of trees and structures outside of the bat hibernation period (between October 1st and March 31st).
Eastern Small-footed Bat (Eastern Small-footed Myotis) (*Myotis leibii*)	END	Species and General Habitat Protection	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark (MNRF Guelph - Waterloo List, 2014).	Potentially suitable wooded and forested habitats are present within the site. The surrounding landscape is dominated by industrial land-use and agriculture, with availability of suitable bat foraging habitats provided by adjacent treed riparian corridor, SWM ponds and lacustrine habitat south of the Site and along the Lake Erie shoreline.	SAR Habitat Assessment.	This species was not detected.	Moderate - removal of trees may impact potential day-roosting opportunities for bats. Impacts can be minimized by restricting removal of trees and structures outside of the bat hibernation period (between October 1st and March 31st).
Plants							

Species	ESA Status[1]	ESA Protection[2]	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Butternut (*Juglans cinerea*)	END	Species and General Habitat Protection	Generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows (MNRF Guelph - Waterloo List, 2014).	This species may be found in the general vicinity of the site, and potentially suitable wooded and forested habitats along streams are present.	SAR Habitat Assessment.	This species was not detected.	Moderate - potential habitat within the study area; recorded occurrences outside study area near Lake Erie shore.

Table 2: Special Concern and Rare species screening.

Species	ESA Status[1] and Regional Occurrence	ESA Protection[2]	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Birds							
Eastern Wood-pewee (*Contopus virens*)	SC	N/A	Associated with deciduous and mixed forests. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges (MNRF Guelph - Waterloo List, 2014)	Suitable breeding habitat is limited to the Fresh – Moist Oak – Maple Hickory Deciduous woodland habitat to the east of the site. The species may migrate through the site.	SAR Habitat Assessment.	This species was not detected.	Low - limited suitable breeding habitat within the study area.
Bald Eagle (*Haliaeetus leucocephalus*)	SC	N/A	Prefers deciduous and mixed-deciduous forest; and habitat close to water bodies such as lakes and rivers; They roost in super canopy trees such as Pine (MNRF Guelph - Waterloo List, 2014)	The presence of deciduous forest surrounding Centre Creek and Lake Erie suggests potential habitat for this species. This species may migrate through the site.	SAR Habitat Assessment.	This species was not detected.	Low – limited suitable breeding habitat within the study area; however, the larger natural area surrounding Lake Erie may be more suitable to the species.
Peregrine Falcon anatum/tundrius (*Falco peregrinus anatum/tundrius*)	SC	N/A	Generally nest on tall, steep cliff ledges adjacent to large waterbodies; some birds adapt to urban environments and nest on ledges of tall buildings, even in densely populated downtown areas (MNRF Guelph - Waterloo List, 2014).	The adjacent Lake Erie shoreline suggests potential nesting opportunities outside of the site for this species. This species may migrate through the site.	SAR Habitat Assessment.	This species was not detected.	None – no suitable breeding habitat within the study area.

Species	ESA Status[1] and Regional Occurrence	ESA Protection[2]	Key Habitats Used by Species in Ontario	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Results of Field Surveys	Likelihood and Magnitude of Impacts to Species or Habitat
Wood Thrush (*Hylocichla mustelina*)	SC	N/A	Nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics, but may also nest in small forest fragments (MNRF Guelph - Waterloo List, 2014)	Suitable breeding habitat is limited to the Fresh – Moist Oak – Maple Hickory Deciduous woodland habitat to the east of the site. The species may migrate through the site.	SAR Habitat Assessment.	This species was not detected.	Low - limited suitable breeding habitat within the study area.
Herpetiles							
Milksnake (*Lampropeltis triangulum*)	SC	N/A	Generally occur in rural areas, where it is most frequently reported in and around buildings, especially old structures. It is also found in a wide variety of habitats, from prairies, pastures, and hayfields, to rocky hillsides and a wide variety of forest types. They must also be in proximity of water, and suitable locations for basking and egg-laying (MNRF Guelph - Waterloo List, 2014).	There are no buildings within subject site. The surrounding landscape is dominated by agriculture and heavy industrial land-use with limited forested lands and wetland adjacent to a riparian corridor connected to Lake Erie south of the Site.	SAR Habitat Assessment.	This species was not detected.	Low - limited suitable habitat within the study area; however, the larger natural area surrounding Lake Erie may be more suitable to the species.
Snapping Turtle (*Chelydra serpentina*)	SC	N/A	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits (MNRF Guelph - Waterloo List, 2014).	Snapping Turtles are commonly found in the surrounding areas and riverine and wetland habitat within the subject site may provide suitable nesting habitat.	SAR Habitat Assessment.	This species was not detected.	Moderate - Snapping Turtles may be present within the study area. Exclusion fencing and encounter protocols should be implemented to limit potential impacts to turtles encountered within the study area during the active season.
Insects							
Monarch (*Danaus plexippus*)	SC	N/A	Exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces (MNRF Guelph - Waterloo List, 2014)	Vegetation cover on and adjacent to the site may provide potentially suitable habitat for this species. The larval host plant Common Milkweed is present on the site.	SAR Habitat Assessment.	This species was not detected.	High - potential habitat within the study area.

Protection status: [1] ESA – Endangered Species Act and [2] SARA – Species at Risk Act

END – Endangered, THR – Threatened, SC – Special concern, NAR – Not at Risk

APPENDIX

D SWH TABLE

This evaluation is based on the Significant Wildlife Habitat Ecoregion Criteria Schedules for Ecoregion 7E (MNRF January 2015). The following text and tables are from that document, but include an additional 'evaluation' column, with discussion of site-specific attributes within the Lake Erie Industrial Park study area.

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SCHEDULE 7E: IDENTIFICATION OF Significant Wildlife Habitat

This schedule is designed to provide the recommended criteria for identifying Significant Wildlife Habitat (SWH) within Ecoregion 7E [ccxvi]. Tables 1.1 through 1.4 within the Schedules provide guidance for SWH designation for the four categories of SWH outlined in the Significant Wildlife Habitat Technical Guide and its Appendices [cxlviii, cxlix]. Table 1.5 contains and provides descriptions for exceptions criteria for ecoregional SWH which will be identified at an ecodistrict scale [ccxvi]. Exceptions occur when criteria for a specific habitat are different within an ecodistrict compared to the remainder of an ecoregion or if a habitat only occurs within a restricted area of the ecoregion.

The schedules, including description of wildlife habitat, wildlife species, and the criteria provided for determining SWH, are based on science and expert knowledge. The ELC Ecosite codes are described using the Ecological Land Classification (ELC) for Southern Ontario [lxxviii]. The information within these schedules will require periodic updating to keep pace with changes to wildlife species status in the Species at Risk in Ontario (SARO) list, or as new scientific information pertaining to wildlife habitats becomes available. Therefore, MNRF will occasionally need to review and update these schedules and provide addenda. A reference document for all SWH is found after the schedules and includes citations for all ecoregional schedules. Each citation used to assist with the criteria for SWH will be indicated by a roman numeric symbol. Where no reference exists, MNRF expert opinion was used for determination of criteria, this symbol "Ⓔ" represents when MNRF expert opinion was utilized to develop defining criteria.

Criteria For Significant Wildlife Habitat in Ecoregion 7E

1. 1 SEASONAL CONCENTRATION AREAS OF ANIMALS

Seasonal concentration areas are areas where wildlife species occur annually in aggregations at certain times of the year. Such areas are sometimes highly concentrated with members of a given species, or several species, within relatively small areas. In spring and autumn, migratory wildlife species will concentrate where they can rest and feed. Other wildlife species require habitats where they can survive winter. Examples of seasonal concentration areas include deer wintering areas, breeding bird colonies and hibernation sites for reptiles, amphibians and some mammals
cxlviii. Table 1.1 outlines what wildlife habitats and defining criteria that are considered for seasonal concentration areas within Ecoregion 7E.

Table 1.1 Seasonal Concentration Areas of Animals.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
1. Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale;** Habitat important to migrating waterfowl.	American Black Duck American Wigeon Blue-winged Teal Gadwall Green-winged Teal Northern Pintail Northern Shoveler Tundra Swan	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites. - Fields with seasonal flooding and waste grains in the Long Point, Rondeau, Lk. St. Clair, Grand Bend and Pt. Pelee areas may be important to Tundra Swans.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available [cxlviii]. Information Sources • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC)Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • Any mixed species aggregations of 100Ⓔ or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius, dependant on local site conditions and adjacent land use is the significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWH MISTIndex #7 provides development effects and mitigation measures.	Suitable candidate habitat may be present within agricultural fields on the subject site. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded. Targeted breeding bird surveys should be undertaken in 2022 with supplemental observations during other field work. • None of the listed species were recorded. **Conclusion: candidate SWH occurs within the agricultural fields on the subject site. Further surveys are recommended to confirm the absence/presence of this habitat type.**

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
2. Waterfowl Stopover and Staging Areas (Aquatic) **<u>Rationale;</u>** 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.	American Black Duck American Wigeon Black Scoter Blue-winged Teal Brant Bufflehead Cackling Goose Canada Goose Canvasback Common Goldeneye Common Merganser Gadwall Greater Scaup Green-winged Teal Hooded Merganser Lesser Scaup Long-tailed Duck Northern Pintail Northern Shoveler Red-breasted Merganser Redhead Ring-necked duck Ruddy Duck Ruddy Duck Snow Goose Surf Scoter White-winged Scoter	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water) <u>Information Sources</u> • Environment Canada • Naturalist clubs often are aware of staging/stopover areas. • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: • Aggregations of 100Ⓔ or more of listed species for 7 daysⒺ, results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH[cxlix] • The combined area of the ELC ecosites and a 100m radius area is the SWH[cxlviii] • Wetland area and shorelines associated with sites identified within the SWHTG[cxlviii] Appendix Kcxlix are significant wildlife habitat. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • 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). • SWH MIST[cxlix] Index #7 provides development effects and mitigation measures.	Suitable candidate habitat is present within SWD2-2 habitat on the subject site. MAS2-1 habitat is southeast of the subject site and is within the study area. Lake Erie provides habitat south of the study area. Field surveys were undertaken on October 12 and 13, 2021. One (1) of the listed species was recorded. • One (1) Merganser was noted within the SWM pond at the time of assessment; however, SWM ponds do not qualify as SWH. **Conclusion: candidate SWH occurs within the SWD2-2 habitat on the subject site and MAS2-1 habitat within the study area. Further surveys are recommended to confirm the absence/presence of this habitat type.**

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
3. Shorebird Migratory Stopover Area **<u>Rationale:</u>** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	American Golden-Plover Baird's Sandpiper Black-bellied Plover Dunlin Greater Yellowlegs Hudsonian Godwit Least Sandpiper Lesser Yellowlegs Marbled Godwit Pectoral Sandpiper Purple Sandpiper Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Semipalmated Plover Semipalmated Sandpiper Short-billed Dowitcher Solitary Sandpiper Spotted Sandpiper Stilt Sandpiper White-rumped Sandpiper	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Information Sources</u> • Western hemisphere shorebird reserve network. • Canadian Wildlife Service (CWS) Ontario Shorebird Survey. • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • NHIC Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000Í shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100Í Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area [cxlviii] • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWH MIST[cxlix] Index #8 provides development effects and mitigation measures.	Suitable candidate habitat is present within MAM2-2 and MAM2-10 habitat on the subject site. Known / regularly used high quality shorebird migratory stopover areas may be provided by the Lake Erie shoreline south of the study area. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded. Targeted breeding bird surveys should be undertaken in 2022 with supplemental observations during other field work. • None of the listed species were recorded. **Conclusion: candidate SWH occurs within the MAM2-2 and MAM2-10 habitat on the subject site; however, the Lake Erie shoreline south of the study area likely provides more suitable SWH. Further surveys are recommended to confirm the absence/presence of this habitat type.**
4. Raptor Wintering Area **<u>Rationale:</u>** Sites used by multiple species, a high number of individuals and used annually are most significant	American Kestrel Northern Harrier Red-tailed Hawk Rough-legged Hawk Snowy Owl **<u>Special Concern:</u>** Bald Eagle Short-eared Owl	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. <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).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering (hawk/owl) sites need to be > 20 ha [cxlviii, cxlix] with a combination of forest and upland.[xvi, xvii, xviii, xix, xx, xxi]. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands [cxlix] • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting[cxlix] <u>Information Sources</u>: • OMNR Ecologist or Biologist • Naturalist clubs • Natural Heritage Information Centre (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts • Reports and other information available from Conservation Authorities.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One of more Bald Eagles or; At least10 individuals and two of the listed hawk/owl species Ⓔ • To be significant a site must be used regularly (3 in 5 years)[cxlix] 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"[ccxi] • SWH MIST[cxlix] Index #10 and #11 provides development effects and mitigation measures.	Candidate habitat for Hawks/Owls is present on the subject site within FOD9, FOD7-4 and CUT1 communities. Candidate habitat for Bald Eagle is present on the subject site within FOD9, FOD7-4 communities. FOD9 is adjacent to Centre Creek. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded. • None of the listed species were recorded. **Conclusion: candidate SWH may be present. Further surveys are recommended to confirm the absence/presence of this habitat type.**

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
5. Bat Hibernacula **<u>Rationale;</u>** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH • The locations of bat hibernacula are relatively poorly known. <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • Natural Heritage Information Centre (NHIC) Bat Hibernaculum • Ministry of Northern Development and Mines for location of mine shafts. • Clubs that explore caves (eg. Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are SWH Ⓔ. • The area includes 200m radius around the entrance of the hibernaculum, Ⓔ for most development types and 1000m for wind farms[ccv]. • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects"[ccv]. • SWH MIST[cxlix] Index #1 provides development effects and mitigation measures.	No candidate habitat types are present. **Conclusion: no candidate or confirmed SWH is present.**
6. Bat Maternity Colonies **<u>Rationale:</u>** Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings[xxii, xxv, xxvi, xxvii, xxxi] (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario[xxii]. • Maternity colonies located in Mature deciduous or mixed forest stands[ccix, ccx] with >10/ha large diameter (>25cm dbh) wildlife trees[ccvii] • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 [ccxiv] or class 1 or 2 [ccxii]. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred[ccx] <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by; >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"[ccv]. • SWH MIST[cxlix] Index #12 provides development effects and mitigation measures.	Candidate habitat may be present within the subject site within FOD9, FOD7-4 and SWD2-2 vegetation types. Field surveys were undertaken on October 12 and 13, 2021. The trees within the ELC communities throughout the site were investigated for their potential to provide maternity roosting habitat. Based on the presence of forested Ecosites FOD9, FOD7-4 and SWD2-2 and observations of potential cavity roosting trees, candidate habitat exists. Further assessment is recommended. **Conclusion: candidate SWH may be present.**

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
7. Turtle Wintering Areas **<u>Rationale:</u>** Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle **<u>Special Concern:</u>** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted turtles, ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. [cix, cx, cxi, cxviii] • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. <u>Information Sources</u> • EIS studies carried out by Conservation Authorities. • Field Naturalists Clubs • OMNRF ecologist or biologist • Natural Heritage Information Centre (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant[Í]. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant[Í]. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) [cvii]. Congregation of turtles is more common where wintering areas are limited and therefore significant [cix, cx, cxi, cxii]. • SWH MIST[cxlix] Index #28 provides development effects and mitigation measures for turtle wintering habitat.	Wetlands or waterbodies that are of a suitable depth within 120 m within the subject site and may be present south of the subject site within the wetland habitat associated with Centre Creek and an unnamed tributary. Field surveys were undertaken on October 12 and 13, 2021. • Turtle egg shells were noted adjacent to the SWM pond at the time of assessment; however, SWM ponds do not qualify as SWH. • One (1) Midland Painted Turtle was observed along New Lakeshore Road adjacent to the MAS2-1 community south of the subject site within the study area. Based on the presence of wetland Ecosites MAM2-2, MAM2-10, MAS2-1 and SWD2-2 and observations above, candidate habitat exists. Further assessment is recommended. **Conclusion: wetland habitat may support overwintering habitat; therefore, candidate SWH is present within the subject site and study area.**
8. Reptile Hibernaculum **<u>Rationale;</u>** Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**<u>Snakes:</u>** Eastern Gartersnake Northern Brownsnake Northern Red-bellied Snake Northern Ring-necked Snake Northern Watersnake Smooth Green Snake Milksnake **<u>Special Concern:</u>** Eastern Ribbonsnake	For all snakes, habitat may be found in any ecosite in central Ontario other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator.	For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line[xliv, l, li, lii, cxii] . Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. <u>Information Sources</u> • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g.old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs • University herpetologists • Natural Heritage Information Centre (NHIC)	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. <u>or</u>; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. <u>or</u>; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • <u>Note</u>: If there are Special Concern Species present, then site is SWH • <u>Note</u>: Sites for hibernation possess specific habitat parameters (e.g., temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population [i.e., strong hibernation site fidelity.]. Other critical life processes (e.g., mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m buffer is the SWH[Í] • SWH MIST[cxlix] Index #13 provides development effects and mitigation measures for snake hibernacula.	Suitable areas that could act as hibernacula were not identified during the site investigations. No candidate habitat types are present. Snakes are likely present across the subject site and may hibernate within this area, but potential hibernacula were not identified on the subject site. Field surveys were undertaken on October 12 and 13, 2021. • None of the listed species were recorded. **Conclusion: no candidate or confirmed SWH is present.**

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
9. Colonially -Nesting Bird Breeding Habitat (Bank and Cliff) **<u>Rationale;</u>** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario [cxcix].	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. <u>Information Sources</u> • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas • Bird Studies Canada; NatureCounts http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.	Studies confirming: • Presence of 1 or more nesting sites with 8or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWH MIST[cxlix] Index #4 provides development effects and mitigation measures	There is no known colonially-nesting bird habitat (bank/cliff) present within the vicinity of the subject site. SWH may be provided by the Lake Erie shoreline south of the study area. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded. • None of the listed species were recorded. **Conclusion: no candidate or confirmed SWH is present.**
10. Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs) **<u>Rationale;</u>** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Black-crowned Night-Heron Great Blue Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. <u>Information Sources</u> • Ontario Breeding Bird Atlas [ccv], colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • Natural Heritage Information Centre (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from Conservation Authorities. • MNRF District Offices. • Field Naturalist Clubs	Studies confirming: • Presence of 2[1] or more active nests of Great Blue Heron. • The edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH [cc, ccvii] • 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 • SWH MIST[cxlix] Index #5 provides development effects and mitigation measures.	Suitable candidate habitat is present within SWD2-2 habitat on the subject site. A Wildlife Concentration Area: Mixed Wader Nesting Colony was identified within the vicinity of the study area on NDMNRF mapping (NHIC 2019). Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded and no stick nests were observed. • None of the listed species were recorded. **Conclusion: candidate SWH occurs within the SWD2-2 habitat on the subject site; however, the Lake Erie shoreline south of the study area likely provides more suitable SWH. Further surveys are recommended to confirm the absence/presence of this habitat type.**

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
11. Colonially -Nesting Bird Breeding Habitat (Ground) **<u>Rationale:</u>** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Brewer's Blackbird Caspian Tern Common Tern Great Black-backed Gull Herring Gull Little Gull Ring-billed Gull	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1-6; MAS1-3; CUM CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. <u>Information Sources</u> • Ontario Breeding Bird Atlas, rare/colonial species records. • Canadian Wildlife Service. • Reports and other information available from Conservation Authorities. • Natural Heritage Information Centre (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices. • Field Naturalist Clubs.	Studies confirming: • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian TernⒺ. • Presence of 5 or more pairs for Brewer's BlackbirdⒺ. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant Ⓔ. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH [cc,cvii] • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWH MIST[cxiix]Index #6 provides development effects and mitigation measures.	There is no known colonially-nesting bird habitat (ground) present within the vicinity of the subject site. The subject site does not occur adjacent to a large river to suggest breeding habitat potential. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded. • None of the listed species were recorded. **Conclusion: no candidate or confirmed SWH is present.**
12. Migratory Butterfly Stopover Areas **<u>Rationale:</u>** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral **<u>Special Concern:</u>** Monarch	Combination of ELC Community Series; need to have present one Community Series from each landclass: <u>Field</u>: CUM CUT CUS <u>Forest</u>: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Erie or Lake Ontario [cxlix]. • 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 [xxxii, xxxiii, xxxiv, xxxv, xxxvi]. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat [cxlviii, cxlix]. • 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 [xxxvii, xxxviii, xxxix, xl, xli]. <u>Information Sources</u> • MNRF District Offices • Natural Heritage Information Centre (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)[xliii]. 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[xxxvii], significant variation can occur between years and multiple years of sampling should occur [xl, xlii]. • MUD of >5000 **or** >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.Í • SWHDSS [cxlix] Index #16 provides development effects and mitigation measures.	Suitable candidate habitat is present since the subject site is within 5 km from Lake Erie and contains CUM1-1, CUT1 and FOD9 communities. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded; however, the larval host plant for Monarch, Common Milkweed, was noted across the subject site. **Conclusion: candidate SWH is present.**

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
13. Landbird Migratory Stopover Areas **<u>Rationale:</u>** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.on.ec.gc.ca/wildlife_e.html All migrant raptors species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	• Woodlots >5 haÍ in size and within 5 km [iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv] of Lake Erie and Lake Ontario. If woodlands are rare in an area of shoreline, woodland fragments 2-5ha can be considered for this habitat. • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Erie and Lake Ontario are more significant[cxlix]. Sites have a variety of habitats; forest, grassland and wetland complexes [cxlix]. • The largest sites are more significant [cxlix] • Woodlots and forest fragments are important habitats to migrating birds[ccxviii], these features located along the shore and located within 5km of Lake Erie and Lake Ontario are Candidate SWH [cxlviii]. <u>Information Sources</u> • Bird Studies Canada • Ontario Nature • Local birders and field naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the woodlot by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey datesÍ. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWH MIST [cxlix] Index #9 provides development effects and mitigation measures.	Suitable candidate habitat is present since the subject site is within 5 km from Lake Erie and contains forested communities FOD9 and SWD2-2. **Conclusion: candidate SWH occurs on the subject site; however, the forested Lake Erie shoreline south of New Lakeshore Road within the study area likely provides more suitable SWH. Further surveys are recommended to confirm the absence/presence of this habitat type.**
14. Deer Winter Congregation Areas **<u>Rationale:</u>** Deer movement during winter in the southern areas of Eco-region 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions [cxlviii].	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots >100 ha in size or if large woodlotsare rare in a planning area woodlots >50haⒺ • Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significantⒺ. <u>Information Sources</u> • MNRF District Offices. • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF [cxlviii]. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques[ccxxiv] , ground or road surveys. or a pellet count deer density survey[ccxxv]. • SWH MIST [cxlix] Index #2 provides development effects and mitigation measures.	Deer Winter Congregation Areas were not identified by NDMNRF. **Conclusion: no candidate or confirmed SWH is present.**

1.2 RARE VEGETATION COMMUNITIES OR SPECIALIZED HABITAT FOR WILDLIFE

1.2.1 Rare Vegetation Communities

Rare vegetation communities often contain rare species, particularly plants and small invertebrates, which depend on such habitats for their survival and cannot readily move to or find alternative habitats. When assessing rare vegetation communities, one of the most important criteria is the current representation of the community in the planning area based on its area relative to the total landscape or the number of examples within the planning area. There are a number of criteria used to define rare vegetation communities, however the NHIC uses a system that considers the provincial rank of a species or community type as a tool to prioritize protection efforts. These ranks are not legal designations but have been assigned using the best available scientific information, and follow a systematic ranking procedure developed by The Nature Conservancy (U.S.). The ranks are based on three factors: estimated number of occurrences, estimated community aerial extent, and estimated range of the community within the province:

S1 Extremely rare - usually 5 or fewer occurrences in the province, or very few remaining hectares. **S2 Very rare -** usually between 5 and 20 occurrences in the province, or few remaining hectares. **S3 Rare to uncommon -** usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with some extensive examples remaining.

The setting of criteria for significant wildlife habitat (SWH) has incorporated this ranking system into its process of determining rare vegetation communities and as such, a rare vegetation community is defined to include areas that contain a provincially rare vegetation community and/or areas that contain a vegetation community that is rare within the planning area. SWH Table 1.2.1 contains a listing of rare vegetation communities that are considered SWH for the planning area contained within Ecoregion 7E.

Table 1.2.1 Rare Vegetation Communities.

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Evaluation
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
15. Cliffs and Talus Slopes **<u>Rationale:</u>** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris	Most cliff and talus slopes occur along the Niagara Escarpment. <u>Information Sources</u> • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website. • Field Naturalist Clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes [lxxviii] • SWH MIST[cxlix] Index #21 provides development effects and mitigation measures.	No suitable candidate or confirmed habitat is present, and none of the listed ELC types were found. **Conclusion: no candidate or confirmed SWH is present.**
16. Sand Barren **<u>Rationale:</u>** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	A sand barren area >0.5ha in sizeⒺ. <u>Information Sources</u> • OMNRF Districts. • Natural Heritage Information Centre (NHIC) has location information available on their website. • Field Naturalist Clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens [lxxviii] • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWH MIST[cxlix] Index #20 provides development effects and mitigation measures.	No suitable candidate habitat is present in the vicinity of the Site. **Conclusion: no candidate or confirmed SWH is present.**

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Evaluation
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
17. Alvar **<u>Rationale:</u>** Alvars are extremely rare habitats in Ecos-region 7E.	ALO1 ALS1 ALT1 CUM2 CUS2 CUT2-1 CUW2 FOC1 FOC2 **<u>Five Alvar Indicator Species:</u>** 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum These indicator species are very specific to Alvars within Ecoregion 7Eⓔ[cxlix]	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 plant. 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 [lxxviii].	An Alvar site > 0.5 ha in size [lxxv]. Alvar is particularly rare in Ecoregion 7E where the only known sites are found in the western islands of Lake Erie. [cxcix] <u>Information Sources</u> • Alvars of Ontario (2000), Federation of Ontario Naturalists. • Ontario Nature – Conserving Great Lakes Alvars. • Natural Heritage Information Centre (NHIC) has location information available on their website. • OMNRF Staff. • Field Naturalist Clubs. • Conservation Authorities.	• Field studies that identify four of the fiveⓔ Alvar Indicator Species [lxxv,cxlix] at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses [lxxv] • SWH MIST[cxlix] Index #17 provides development effects and mitigation measures.	No suitable candidate habitat is present. None of the listed ELC types are present and none of the indicator species were recorded. **Conclusion: no candidate or confirmed SWH is present.**
18. Old Growth Forest **<u>Rationale:</u>** Due to historic logging practices and land clearance for agriculture, old growth forest is rare in Ecoregion 7E.	Forest Community Series: FOC FOD FOM SWC SWD SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland area is >0.5ha. <u>Information Sources</u> • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist Clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species of the ecosite are >140 years old, then stand is Significant Wildlife Habitat [cxlviii] • The stand will have experienced no recognizable forestry activities [cxlviii] (cut stumps will not be present) • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest forest area containing the old growth characteristics [lxxviii] • SWH MIST[cxlix] Index #23 provides development effects and mitigation measures.	The contiguous woodland that crosses through the subject site does not meet the size criteria. **Conclusion: no candidate or confirmed SWH is present.**

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Evaluation
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**	
19. Savannah **<u>Rationale:</u>** Savannahs are extremely rare habitats in Ontario.	CUS2 TPS1 TPS2 TPW1 TPW2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).	No minimum size to site Í Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) has location data available on their website. • OMNRF Districts. • Field Naturalists Clubs. • Conservation Authorities.	Field studies confirm one or more of the Savannah indicator species listed in [lxxv] Appendix N should be present Í. Note: Savannah plant spp. list from Ecoregion 7E should be used[cxlviii]. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWH MIST[cxlix] Index #18 provides development effects and mitigation measures.	No suitable candidate habitat is present; none of the listed ELC types are present. **Conclusion: no candidate or confirmed SWH is present.**
20. Tallgrass Prairie **<u>Rationale:</u>** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).	No minimum size to site Í. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> • OMNRF Districts. • Natural Heritage Information Centre (NHIC) has location information available on their website. • Field Naturalists Clubs. • Conservation Authorities.	Field studies confirm one or more of the Prairie indicator species listed in [lxxv] Appendix N should be present Í. Note: Prairie plant spp. list from Ecoregion 7E should be used[cxlviii] • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWHDSS[cxlix] Index #19 provides development effects and mitigation measures.	No suitable candidate habitat is present. None of the listed ELC types are present and no prairie indicator species were recorded. **Conclusion: no candidate or confirmed SWH is present.**
21. Other Rare Vegetation Communities **<u>Rationale:</u>** Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG[cxlviii] . Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M [cxlviii] The OMNRF/NHIC will have up to date listing for rare vegetation communities. <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) has location information available on their website. • OMNRF Districts. • Field Naturalists Clubs. • Conservation Authorities.	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG[cxlviii] • Area of the ELC Vegetation Type polygon is the SWH. • SWH MIST [cxlix] Index #37 provides development effects and mitigation measures.	Field surveys were undertaken on October 12 and 13, 2021. Although NHIC mapping indicates the presence of a non-provincially significant wetland at this location, based on the ELC work, a FOD7-4 (S2S3) community occurs within the subject site. A multi-season ELC assessment should be conducted to refine the unit code. **Conclusion: candidate SWH may be present.**

1.2.2 Specialized Habitat for Wildlife

Some wildlife species require large areas of suitable habitat for their long-term survival. Many wildlife species require substantial areas of suitable habitat for successful breeding. Their populations decline when habitat becomes fragmented and reduced in size[cxlviii]. Specialized habitat for wildlife is a community or diversity-based category, therefore, the more wildlife species a habitat contains, the more significant the habitat becomes to the planning area. The largest and least fragmented habitats within a planning area will support the most significant populations of wildlife. The specialized habitats for wildlife that are considered as SWH are outlined in Table 1.2.2.

Table 1.2.2 Specialized Habitats of Wildlife considered SWH.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
22. Waterfowl Nesting Area **<u>Rationale;</u>** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Blue-winged Teal Gadwall Green-winged Teal Hooded Merganser Mallard Northern Pintail Northern Shoveler Wood Duck	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWT1 SWT2 **Note: includes adjacency to Provincially Significant Wetlands**	A waterfowl nesting area extends 120 m [cxlix] from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur [cxlix]. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from Conservation Authorities.	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards[Í], or; • Presence of 10 or more nesting pairs for listed species including Mallards[Í]. • 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"[ccxi] • 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 [cxlviii] from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWH MIST[cxlix] Index #25 provides development effects and mitigation measures.	Candidate habitat is present. Candidate wetland ecosites were identified. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded. Targeted breeding bird surveys should be undertaken in 2022 with supplemental observations during other field work. • None of the listed species were recorded. **Conclusion: candidate SWH is present.**

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
23. Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **<u>Rationale:</u>** Nest sites are fairly uncommon in Eco-region 7E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey **<u>Special Concern:</u>** Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. Nests located on man-made objects are not to be included as SWH (e.g., telephone poles and constructed nesting platforms). <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF District. • Check the Ontario Breeding Bird Atlas [ccv] or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area[cxlviii] . • 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 [ccvii], maintaining undisturbed shorelines with large trees within this area is important [cxlviii]. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. [cvi, ccvii] Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat [cvi] • 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. [ccvii] • 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"[ccxi] • SWH MIST[cxlix] Index #26 provides development effects and mitigation measures	Candidate habitat is present. Forests or swamps adjacent to riparian areas were identified. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded. Targeted breeding bird surveys should be undertaken in 2022 with supplemental observations during other field work. • None of the listed species were recorded. **Conclusion: candidate SWH is present.**
24. Woodland Raptor Nesting Habitat **<u>Rationale:</u>** Nests sites for these species are rarely identified; these area sensitive habitats are often used annually by these species.	Barred Owl Broad-winged Hawk Cooper's Hawk Northern Goshawk Red-shouldered Hawk Sharp-shinned Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >4ha of interior habitat [lxxxviiii, lxxxix, xc, xci, xciii, xciv, xcv,xcvi, cxxxiii]. Interior habitat determined with a 200m buffer[cxlviii] • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of 1 or more active nests from species list is considered significant[cxlviii]. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha of suitable habitat is the SWH [ccvii]. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) • Barred Owl – A 200m radius around the nest is the SWH [ccvii]. • Broad-winged Hawk and Coopers Hawk,– A 100m radius around the nest is the SWH[ccvii]. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH[ccvii]. • 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. • SWH MIST [cxlix] Index #27 provides development effects and mitigation measures.	Candidate habitat is not present, since forest containing interior habitat is not present throughout the Site. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded. Targeted breeding bird surveys should be undertaken in 2022 with supplemental observations during other field work. • None of the listed species were recorded. **Conclusion: no candidate SWH or confirmed SWH is present.**

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
25. Turtle Nesting Areas **<u>Rationale;</u>** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle **<u>Special Concern Species:</u>** Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) [cxlviii] or within the following ELC Ecosites: BOO1 FEO1 MAS1 MAS2 MAS3 SAF1 SAM1 SAS1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Centre (NHIC) • Field Naturalist Clubs	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles[Í] • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH[Í]. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH.[cxlviii] • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWH MIST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	No candidate or confirmed habitat is present. Based on the ELC communities present within the study area, suitable nesting habitat may be present within the MAS2-1 habitat south of the subject site within the study area. There is potential for turtle nesting within the study area within wetland habitats south of the subject site. Field surveys were undertaken on October 12 and 13, 2021. • Turtle egg shells were noted adjacent to the SWM pond at the time of assessment; however, SWM ponds do not qualify as SWH. • One (1) Midland Painted Turtle was observed along New Lakeshore Road adjacent to the MAS2-1 community south of the subject site within the study area. Road shoulders do not qualify as SWH. **Conclusion: candidate or confirmed SWH is unlikely to occur within the subject site, but candidate habitat occurs within the study area within the wetland habitat south of the subject site. Further surveys are recommended to confirm the absence/presence of this habitat type.**
26. Seeps and Springs **<u>Rationale;</u>** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Ruffed Grouse Salamander spp. Spruce Grouse White-tailed Deer Wild Turkey	Seeps/Springs are areas where ground water comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system [cxvii, cxlix]. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species [cxix, cxx, cxxi, cxxii, cxiii, cxiv]. <u>Information Sources</u> • Topographical Map. • Thermography. • Hydrological surveys conducted by Conservation Authorities and MOE. • Field Naturalists Clubs and landowners. • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more[Í] 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. • SWH MIST Index #30 provides development effects and mitigation measures	No seeps or springs were identified on the Site. **Conclusion: no candidate or confirmed SWH is present.**

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
27. Amphibian Breeding Habitat (Woodland) **<u>Rationale:</u>** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Blue-spotted Salamander Eastern Newt Gray Treefrog Spotted Salamander Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOD FOM SWC SWD SWM Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat[cxlviii] <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF Districts and wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm; • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3Ⓔ. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area [lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx, lxxi]. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • SWH MIST [cxlix] Index #14 provides development effects and mitigation measures.	Candidate habitat may be present within the woodland habitat within the subject site: FOD9 and SWD2-2. Field surveys were undertaken on October 12 and 13, 2021. • Few Gray Treefrog vocalizations and a single Western Chorus Frog vocalization were heard within the MAM2-2 community within the subject site and south of the subject site within the study area. **Conclusion: candidate SWH is present. Further surveys are recommended to confirm the absence/presence of this SWH type.**
28. Amphibian Breeding Habitat (Wetlands) **<u>Rationale;</u>** Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	American Toad Blue-spotted Salamander Bullfrog Eastern Newt Four-toed Salamander Gray Treefrog Green Frog Mink Frog Northern Leopard Frog Pickerel Frog Spotted Salamander Western Chorus Frog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically, these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g., Bull Frog) may be adjacent to woodlands	• Wetlands>500m2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation. <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations. • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3Ⓔ. or; Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys [cviii] 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. • SWH MIST [cxlix] Index #15 provides development effects and mitigation measures.	Candidate habitat may be present within the wetland habitat within the subject site: MAM2-2, MAM2-10, SWD2-2 and within the wetland habitat within the study area: MAM2-10, MAS2-1 and SWD. Field surveys were undertaken on October 12 and 13, 2021. • Few Gray Treefrog vocalizations and a single Western Chorus Frog vocalization were heard within the MAM2-2 community within the subject site and south of the subject site within the study area. Northern Leopard Frogs were observed within and adjacent to the SWD2-2 community on the subject site. **Conclusion: candidate SWH is present. Further surveys are recommended to confirm the absence/presence of this habitat type.**

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
29. Woodland Area-Sensitive Bird Breeding Habitat Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Blackburnian Warbler Black-throated Blue Warbler Black-throated Green Warbler Blue-headed Vireo Northern Parula Ovenbird Pileated Woodpecker Red-breasted Nuthatch Veery Scarlet Tanager Winter Wren Yellow-bellied Sapsucker **Special Concern:** Canada Warbler **Threatened:** Cerulean Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. [cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix] • Interior forest habitat is at least 200 m from forest edge habitat. [clxiv] <u>Information Sources</u> • Local birder clubs. • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species • Reports and other information available from Conservation Authorities.	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Ⓔ • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH.Ⓔ • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” [ccxi] • SWH MIST [cxlix] Index #34 provides development effects and mitigation measures.	The contiguous woodland that crosses through the subject site does not meet the size criteria. **Conclusion: no candidate SWH or confirmed SWH is present.**

1.3 HABITAT FOR SPECIES OF CONSERVATION CONCERN (NOT INCLUDING ENDANGERED OR THREATENED SPECIES)

Habitats of Species of Conservation Concern include wildlife species that are listed as Special Concern or rare, that are declining, or are featured species. Habitats of Species of Conservation Concern do not include habitats of Endangered or Threatened species as identified by the Endangered Species Act 2007. Table 1.3 assists with the identification of SWH for Species of Conservation Concern.

Table 1.3. Habitats of Species of Conservation Concern considered SWH.

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
30. Marsh Breeding Bird Habitat **<u>Rationale:</u>** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern American Coot Common Loon Common Moorhen Green Heron Marsh Wren Pied-billed Grebe Sandhill Crane Sedge Wren Sora Trumpeter Swan Virginia Rail **<u>Special Concern:</u>** Black Tern Yellow Rail	BOO1 FEO1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAF1 SAM1 SAS1 For Green Heron: All SW, MA and CUM1 sites.	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present [cxxiv]. • 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. <u>Information Sources</u> • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Centre (NHIC) Records. • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas.	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 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” • SWH MIST Index #35 provides development effects and mitigation measures	Candidate habitat may be present. MAM2-2 and MAM2-10 ecotypes were identified on the subject site. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded. • None of the listed species were recorded. **Conclusion: candidate SWH is present. Further surveys are recommended to confirm the absence/presence of this habitat type.**
31. Open Country Bird Breeding Habitat **<u>Rationale:</u>** 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.	Northern Harrier Savannah Sparrow Upland Sandpiper Vesper Sparrow **<u>Special Concern:</u>** Grasshopper Sparrow Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha [clx, clxi, clxii, clxiii, clxiv, clxv, clxvi, clxvii, clxviii, clxix]. 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) Í. 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. <u>Information Sources</u> • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • EIS Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species.Í • 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”[ccxi] • SWH MIST [cxlix] Index #32 provides development effects and mitigation measures	No candidate habitat is present. The CUM1-1 habitat does not meet the size criteria for SWH. Field surveys were undertaken on October 12 and 13, 2021. None of the listed species were recorded. • None of the listed species were recorded. **Conclusion: no candidate SWH or confirmed SWH is present.**

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
32. Shrub/Early Successional Bird Breeding Habitat **<u>Rationale;</u>** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records [cxcix].	**<u>Indicator Spp</u>:** Brown Thrasher Clay-coloured Sparrow **<u>Common Spp.:</u>** Black-billed Cuckoo Eastern Towhee Field Sparrow Willow Flycatcher **<u>Special Concern:</u>** Golden-winged Warbler **Endangered:** Yellow-breasted Chat	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	Large field areas succeeding to shrub and thicket habitats>10ha[clxiv] 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) [Í]. Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species [clxxiii]. Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. <u>Information Sources</u> • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species.[Í] • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWH MIST [cxlix] Index #33 provides development effects and mitigation measures.	Candidate habitat may be provided by the CUT1 community within the subject site. Field surveys were undertaken on October 12 and 13, 2021. Willow Flycatcher vocalizations were recorded. • Willow Flycatcher vocalizations were recorded. **Conclusion: candidate SWH is present. Further surveys are recommended to confirm the absence/presence of this habitat type.**
33. Terrestrial Crayfish **<u>Rationale:</u>** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare. [ccii]	Chimney or Digger Crayfish; (*<u>Fallicambarus fodiens</u>*) Devil Crawfish or Meadow Crayfish; (*<u>Cambarus Diogenes</u>*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <u>Information Sources</u> • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or terrestrial sites [cci] • 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 • SWH MIST [cxlix] Index #36 provides development effects and mitigation measures.	Candidate habitat is present within wet meadows and shallow marshes MAM2-2 and MAM2-10, and within SWD2-2 within the subject site. Candidate habitat may be present within the study area within the MAM2-10, MAS2-1 and SWD communities. During site investigations, no evidence was found. Field surveys were undertaken on October 12 and 13, 2021. No terrestrial crayfish / burrows were recorded during field work, and targeted surveys were outside the scope of the project. **Conclusion: candidate SWH is present. Further surveys are recommended to confirm the absence/presence of this habitat type.**

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
34. Special Concern and Rare Wildlife Species **<u>Rationale:</u>** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre (NHIC).	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites [lxxviii] <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website "Get Information" : http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat. • SWH MIST [cxlix] Index #37 provides development effects and mitigation measures.	Candidate habitat may be present on the subject site. **Conclusion: candidate SWH or confirmed SWH may be present. Further surveys are recommended to confirm the absence/presence of this SWH.**

1.4 ANIMAL MOVEMENT CORRIDORS

Animal Movement Corridors are elongated areas used by wildlife to move from one habitat to another. They are important to ensure genetic diversity in populations, to allow seasonal migration of animals (e.g. deer moving from summer to winter range) and to allow animals to move throughout their home range from feeding areas to cover areas. Animal movement corridors function at different scales often related to the size and home range of the animal. For example, short, narrow areas of natural habitat may function as a corridor between amphibian breeding areas and their summer range, while wider, longer corridors are needed to allow deer to travel from their winter habitat to their summer habitat.

Identifying the most important corridors that provide connectivity across the landscape is challenging because of a lack of specific information on animal movements. There is also some uncertainty about the optimum width and mortality risks of corridors. Furthermore, a corridor may be beneficial for some species but detrimental to others. For example, narrow linear corridors may allow increased access for racoons, cats, and other predators. Also, narrow corridors dominated by edge habitat may encourage invasion by weedy generalist plants and opportunistic species of birds and mammals. Corridors often consist of naturally vegetated areas that run through more open or developed landscapes. However, sparsely vegetated areas can also function as corridors. For example, many species move freely through agricultural land to reach natural areas. Despite the difficulty of identifying exact movement corridors for all species, these landscape features are important to the long-term viability of certain wildlife populations.

Animal Movement Corridors should only be identified as SWH where:

Where a Confirmed or Candidate SWH has been identified by MNR or the planning authority based on documented evidence of a habitat identified within these Criterion Schedules or the Significant Wildlife Habitat Technical Guide. The identified wildlife habitats Table 1.4.1 will have distinct passageways or rely on well defined natural features for movements between habitats required by the species to complete its life cycle.

Table 1.4.1 Animal Movement Corridors

Habitat	SPECIES	CANDIDATE SWH		CONFIRMED SWH	Evaluation
		ELC Eco-sites	Habitat Criteria and Information Sources	Defining Criteria	
35. Amphibian Movement Corridors **<u>Rationale:</u>** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	American Toad Blue-spotted Salamander Bullfrog Eastern Newt Four-toed Salamander Gray Treefrog Green Frog Mink Frog Northern Leopard Frog Pickeral Frog Spotted Salamander Western Chorus Frog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	Movement corridors between breeding habitat and summer habitat [clxxiv, clxxv, clxxvi, clxxvii, clxxviii, clxxix, clxxx, clxxxi]. 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 [Í]. <u>Information Sources</u> • MNRF District Office. • Natural Heritage Information Centre (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs.	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant [cxlix] • Corridors should have at least 15m of vegetation on both sides of waterway [cxlix] or be up to 200m wide [cxlix] of woodland habitat and with gaps <20m [cxlix] . • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat [cxlix]. • SWH MIST [cxlix] Index #40 provides development effects and mitigation measures	Suitable candidate habitat may be present since Amphibian Breeding Habitat – Wetland SWH has potential to be present. Field surveys were undertaken on October 12 and 13, 2021. • Few Gray Treefrog vocalizations and a single Western Chorus Frog vocalization were heard within the MAM2-2 community within the subject site and south of the subject site within the study area. Northern Leopard Frogs were observed within and adjacent to the SWD2-2 community on the subject site. **Conclusion: candidate SWH is present. Further surveys are recommended to confirm the absence/presence of this habitat type.**

1.5 EXCEPTIONS FOR ECOREGION 7E

Exceptions are candidate wildlife habitats that will have different criteria than what is proposed in the above schedules for an area within the Eco-region. The Exceptions will be based on Eco-Districts and municipalities can apply the exception for the eco-district within their planning area.

Table 1.5.1 Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 7E

EcoDistrict	Wildlife Habitat and Species	Candidate SWH			Confirmed SWH	Evaluation
		Ecosites	Habitat Description	Habitat Criteria and Information	Defining Criteria	
7E-2	**Bat Migratory Stopover Area** Rationale: Stopover areas for long distance migrant bats are important during fall migration. Eastern Red Bat Hoary Bat Silver-haired Bat	No specific ELC types.		• Long distance migratory bats typically migrate during late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migration may concentrate these species of bats at stopover areas. • This is the only known bat migratory stopover habitats based on current information. <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • University of Waterloo, Biology Department	• Long Point (42°35'N, 80°30'E, to 42°33'N, 80°03'E) has been identified as a significant stop-over habitat for fall migrating Silver-haired Bats, due to significant increases in abundance, activity and feeding that was documented during fall migration [ccxv]. • The confirmation criteria and habitat areas for this SWH are still being determined. • SWH MIST [cxlix] Index #38 provides development effects and mitigation measures.	Based on the current defining habitat criterion (Long Point), no candidate or confirmed habitat is present since the subject site does not occur on Long Point. **Conclusion: no candidate SWH or confirmed SWH is present.** **Review of the confirmation criteria and habitat areas for this SWH should occur during detailed design to determine if the list of criteria and habitat areas have been completed or updated and might affect the proposed project.**

APPENDIX

E VEGETATION SPECIES LIST

SCIENTIFIC NAME	COMMON NAME	CC [1]	CW[1]	WEEDINESS[1]	OWES WETLAND PLANT LIST[2]	G_RANK[3]	N_RANK	S_RANK[4]	COSEWIC[5]	SARA[6]	SARO[7]	NATIVE STATUS[9]	CAROLINIAN ZONE (OLDHAM 2017)[8]	RESTRICTED (CZ) OR NEARLY RESTRICTED (cz) (Oldham 2017)[8]	HALDIMAND-NORFOLK COUNTY (Oldham 2017)[8]	CUT1	MAM2-2	MAM2-10	SWD2-2	FOD7-4	FOD9	CUP1	SWD
Acer negundo	Manitoba Maple	0	0		X	G5	N5	S5				N	C		C	x							
Acer saccharinum	Silver Maple	5	-3		X	G5	N5	S5				N	C		C								x
Alliaria petiolata	Garlic Mustard		0	-3		GNR	NNA	SNA				I	IC		IC	x				x			
Arctium minus	Common Burdock		3	-2		GNR	NNA	SNA				I	IC		IC	x					x		
Asclepias incarnata	Swamp Milkweed	6	-5		X	G5	N5	S5				N	C		C				x				
Asclepias syriaca	Common Milkweed	0	5			G5	N5	S5				N	C		C	x		x					
Bromus inermis	Smooth Brome		5	-3		G5	NNA	SNA				I	IC		IC			x		x			
Carya ovata	Shagbark Hickory	6	3		X	G5	N5	S5				N	C		C	x		x			x		
Cichorium intybus	Wild Chicory		5	-1		GNR	NNA	SNA				I	IC		IC	x		x					
Cirsium arvense	Canada Thistle		3	-1		G5	NNA	SNA				I	IC		IC	x		x					
Cornus racemosa	Grey Dogwood	2	0		X	G5	N5	S5				N	C		U	x		x	x			x	
Cornus sericea	Red-osier Dogwood	2	-3		X	G5	N5	S5				N	C		C	x	x		x			x	x
Crataegus sp.	Hawthorn sp.															x		x		x	x		x
Daucus carota	Wild Carrot		5	-2		GNR	NNA	SNA				I	IC		IC	x							
Elymus virginicus	Virginia Wildrye	5	-3		X	G5	N5	S5				N								x			
Equisetum arvense	Field Horsetail	0	0		X	G5	N5	S5				N	C		C			x					
Erigeron annuus	Annual Fleabane	0	3			G5	N5	S5				N	C		U			x					
Euthamia graminifolia	Grass-leaved Goldenrod	2	0			G5	N5	S5				N	C		C	x							
Fragaria virginiana	Wild Strawberry	2	3			G5	N5	S5				N				x							
Fraxinus americana	White Ash	4	3			G5	N5	S4				N	C		C						x		
Fraxinus pennsylvanica	Red Ash	3	-3		X	G5	N5	S4				N	C		C	x		x	x	x			x
Galium sp.	Bedstraw sp.																			x			
Geranium robertianum	Herb-Robert	2	3	-2		G5	N5	S5				I	C		C	x							
Geum sp.	Avens sp.															x				x	x		
Geum urbanum	Wood Avens		5	-1		G5	NNA	SNA				I	IX		IR	x							
Hesperis matronalis	Dame's Rocket		3	-3		G4G5	NNA	SNA				I	IC		IC	x							
Hydrophyllum virginianum	Virginia Waterleaf	6	0			G5	N5	S5				N	C		C					x			
Hypericum perforatum	Common St. John's-wort		5	-3		GNR	NNA	SNA				I	IC		IC			x					
Impatiens capensis	Spotted Jewelweed	4	-3		X	G5	N5	S5				N	C		C	x	x						
Iris sp.	Iris sp.																					x	
Juglans nigra	Black Walnut	5	3			G5	N4?	S4?				N	C		C	x				x		x	x
Leersia oryzoides	Rice Cutgrass	3	-5		X	G5	N5	S5				N	C		C				x				
Lemna minor	Small Duckweed	5	-5		X	G5	N5	S5?				N	C		C				x				
Ligustrum vulgare	European Privet		3	-2		GNR	NNA	SNA				I	IX		IR	x					x		
Lonicera sp.	Honeysuckle sp.																	x					
Malus sp.	Apple sp.															x							
Persicaria hydropiperoides	False Waterpepper	4	-5		X	G5	N5	S5				N	U		U				x				
Persicaria pensylvanica	Pennsylvania Smartweed	3	-3		X	G5	N5	S5				N	C		U		x						
Persicaria virginiana	Virginia Smartweed	6	0			G5	N4	S4				N	C	cz	C	x							
Phalaris arundinacea var. arund	Reed Canarygrass	0	-3		X	G5TNR	NNR	S5				N	C		C		x		x	x		x	x
Phleum pratense	Common Timothy		3	-1		GNR	NNA	SNA				I	IC		IC			x					
Phragmites australis ssp. austra	European Reed		-3		X	G5T5	NNA	SNA				I	IC		IC		x					x	
Picea abies	Norway Spruce		5	-1		G5	NNA	SNA				I	IX		IR								x
Pinus strobus	Eastern White Pine	4	3		X	G5	N5	S5				N	C		C			x					x
Populus tremuloides	Trembling Aspen	2	0			G5	N5	S5				N	C		C			x					
Populus x canadensis	Canada Poplar		0			GNA	NNA	SNA				I	hyb		hyb	x		x					
Prunus domestica	Damson Plum		5	-1		GNR	NNA	SNA				I									x		
Prunus serotina	Black Cherry	3	3			G5	N5	S5				N	C		C						x		
Quercus rubra	Northern Red Oak	6	3			G5	N5	S5				N	C		C	x					x		
Rhamnus cathartica	European Buckthorn		0	-3	X	GNR	NNA	SNA				I	IC		IU	x		x	x				x
Rhus typhina	Staghorn Sumac	1	3			G5	N5	S5				N	C		C	x				x			
Ribes sp.	Gooseberry sp.															x							
Robinia pseudoacacia	Black Locust		3	-3		G5	NNA	SNA				I	IC		IC					x			
Rosa multiflora	Multiflora Rose		3	-3		GNR	NNA	SNA				I	IC		IU	x				x	x		
Rubus allegheniensis	Allegheny Blackberry	2	3			G5	N5	S5				N	C		C						x		
Rubus idaeus ssp. strigosus	North American Red Raspberry	2	3			G5T5	N5	S5				N	C		C	x		x	x				
Rubus occidentalis	Black Raspberry	2	5			G5	N5	S5				N	C		C	x				x			
Rumex crispus	Curled Dock		0	-2	X	GNR	NNA	SNA				I	IC		IC			x					
Salix euxina	Crack Willow		0			GNR	NNA	SNA				I	IC		IC							x	
Salix x sepulcralis	Golden Weeping Willow		0			GNA	NNA	SNA				I	hyb			x			x				
Scirpus cyperinus	Common Woolly Bulrush	4	-5		X	G5	N5	S5				N	C		C				x				
Securigera varia	Purple Crown-vetch		5	-2		GNR	NNA	SNA				I	IX		IC			x					
Setaria sp.	Foxtail sp.			-1												x							

SCIENTIFIC NAME	COMMON NAME	CC [1]	CW[1]	WEEDINESS[1]	OWES WETLAND PLANT LIST[2]	G_RANK[3]	N_RANK	S_RANK[4]	COSEWIC[5]	SARA[6]	SARO[7]	NATIVE STATUS[9]	CAROLINIAN ZONE (OLDHAM 2017)[8]	RESTRICTED (CZ) OR NEARLY RESTRICTED (cz) (Oldham 2017)[8]	HALDIMAND-NORFOLK COUNTY (Oldham 2017)[8]	CUT1	MAM2-2	MAM2-10	SWD2-2	FOD7-4	FOD9	CUP1	SWD
Solanum dulcamara	Bittersweet Nightshade		0	-2	X	GNR	NNA	SNA				I	IC		IC	x							
Solidago altissima	Tall Goldenrod	1	3			G5	N5	S5				N	C		C	x		x		x	x		
Solidago canadensis	Canada Goldenrod	1	3			G5	N5	S5				N				x				x			
Symphyotrichum ericoides	White Heath Aster	4	3			G5	N5	S5				N						x					
Symphyotrichum lanceolatum	Panicled Aster	3	-3		X	G5	N5	S5				N				x							
Symphyotrichum lateriflorum	Calico Aster	3	0			G5	N5	S5				N				x		x		x	x		
Symphyotrichum novae-angliae	New England Aster	2	-3			G5	N5	S5				N	C		C	x		x	x	x			
Tanacetum vulgare	Common Tansy		5	-1		GNR	NNA	SNA				I	IX		IU	x	x	x					
Taraxacum officinale	Common Dandelion		3	-2		G5	N5	SNA				I	IC		IC	x							
Tilia americana	Basswood	4	3			G5	N5	S5				N	C		C						x		
Toxicodendron radicans var. ryd	Western Poison Ivy	2	0			G--T5	N5	S5				N	C		C	x							
Typha angustifolia	Narrow-leaved Cattail		-5		X	G5	N5	SNA				I	IC		IC			x					
Typha sp.	Cattail sp.				X																		x
Urtica dioica	Stinging Nettle	2	0			G5	N5	S5				N	IR				x						
Verbena hastata	Blue Vervain	4	-3		X	G5	N5	S5				N	C		C					x			
Viburnum opulus	Cranberry Viburnum	5	-3	-1	X	G5	N5	S5				I	IX		IU	x	x	x					x
Viburnum opulus ssp. trilobum	Highbush Cranberry	5	-3		X	G5TNR	NNR	S5				N	C		U						x		
Vicia cracca	Tufted Vetch		5	-1		GNR	NNA	SNA				I	IX		IU			x					
Viola sp.	Violet sp.															x							
Vitis riparia	Riverbank Grape	0	0			G5	N5	S5				N	C		C	x						x	x

[1] Coefficient of Conservatism, Coefficient of Wetness, Weediness, and Physiology/Habit
Oldham, M. J., W. D. Bakowsky and D. A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ministry of Natural Resources. Peterborough, Ontario
NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xls:
CC and CW values reflect updates by NHIC, current as of February 28, 2020).

CC: Coefficient of Conservatism. Rank of 0 to 10 based on plants degree of fidelity to a range of synecological parameters: (0-3) Taxa found in a variety of plant communities; (4-6) Taxa typically associated with a specific plant community but tolerate moderate disturbance; (7-8) Taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance; (9-10) Taxa with a high fidelity to a narrow range of synecological parameters.
CW: Coefficient of Wetness. Value between 5 and -5. A value of -5 is assigned to Obligate Wetland (OBL) and 5 to Obligate Upland (UPL), with intermediate values assigned to the remaining categories. *NOTE*: NHIC has simplified the values, and includes only -5, -3, 0, 3 and 5.
Weedine Weediness Score, assigned to all non-native species and range from -1(low impact of the species on natural areas) to -3 (high impact of the species on naturalareas).
Habit: Physiology/Habit. The growth form of the species (e.g. forb, shrub, tree).

[2] OWES Wetland Plant List
Ontario Ministry of Natural Resources. 2013. Ontario Wetland Evaluation System Southern Manual. 3rd Edition, Version 3.3
Ontario Ministry of Natural Resources. 2013. Ontario Wetland Evaluation System Northern Manual. 1st Edition, Version 1.3

Species presence or absence on the Ontario Wetland Evaluation System (OWES) Wetland Plant List.
Codes are defined as follows:
X: Present on the list

[3] G-Rank (Global)
Global Status from Nature Serve (via NHIC, February 28, 2020)
NS: http://explorer.natureserve.org/
NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xls:
Global ranks are assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts, and the Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies, or variety

Global (G) Conservation Status Ranks
G1: Critically Imperiled - At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors
G2: Imperiled - at high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors
G3: Vulnerable - At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors
G4: Apparently Secure - At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
G5: Secure - At very low risk or extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats
G#G#: Range Rank – A numeric range rank (e.g., G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).
GX: Presumed Extinct - Not located despite intensive searches and virtually no likelihood of rediscovery.
GH: Possibly Extinct - Known from only historical occurrences but still some hope of rediscovery. Examples of evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct or eliminated throughout its range
GU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR: Unranked – Global rank not yet assessed.
GNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities. A global conservation status rank may be not applicable for several reasons, related to its relevance as a conservation target. For species, typically the species is a hybrid without conservation value, or of domestic origin. For ecosystems, the type is typically non-native (e.g, many ruderal vegetation types), agricultural (e.g. pasture, orchard) or developed (e.g. lawn, garden, golf course
?: Inexact Numeric Rank – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status Ranks or GX or GH.
T#: Infraspecific Taxon (trinomial) - The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species, for example, a G1T2 subrank should not occur. A vertebrate animal population (e.g., listed under the U.S. Endangered Species Act or assigned candidate status) may be tracked as an infraspecific taxon and given a T rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status (e.g., G4T2Q or G5T2Q).
Q: Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower priority (numerically higher) conservation status rank. The "Q" modifier is only used at a global level and not at a national or subnational level
C: Captive or Cultivated Only – Taxon or ecosystem at present is presumed or possibly extinct or eliminated in the wild across their entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside their native range, or as a reintroduced population or ecosystem restoration, not yet established. The "C" modifier is only used at a global level and not at a national or subnational level. Possible ranks are GXC or GHC. This is equivalent to "Extinct" in the Wild (EW) in IUCN's Red List terminology (IUCN 2001).

[4] S-Ranks (Provincial)
Provincial Status from the NHIC (February 28, 2020)
NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xls:
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.

S1: Critically Imperiled – At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors
S2: Imperiled – At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3: Vulnerable – At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors
S4: Apparently Secure – At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors
S5: Secure – At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.
S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
SX: Presumed Extirpated – Species or ecosystem is believed to be extirpated from the jurisdiction (province). Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered. [equivalent to "Regionally Extinct" in IUCN Red List terminology]
SH: Possibly Extirpated (Historical) - Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdictior
SNR: Unranked – subnational conservation status not yet assessed.
SU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species
?: Inexact or Uncertain - Denotes inexact or uncertain numeric rank.
T#: Infraspecific Taxon (trinomial) - The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the subnational rank of a critically imperiled subspecies of an otherwise widespread and common species would be S5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species, for example, a S1T2 subrank should not occur. A vertebrate animal population may be tracked as an infraspecific taxon and given a T rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic statu

[5] COSEWIC (Committee on the Status of Endangered Wildlife in Canada)
The federal review process is implemented by COSEWIC (Status as of February 28, 2020)
The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.
https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html

EXT: Extinct – A species that no longer exists.
EXP: Extirpated – A species no longer existing in the wild in Canada, but occurring elsewhere.
END: Endangered – A species facing imminent extirpation or extinction.
THR: Threatened – A species likely to become endangered if limiting factors are not reversed.
SC: Special Concern – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats
NAR: Not At Risk – A species that has been evaluated and found to be not at risk of extinction given the current circumstances.
DD: Data Deficient – Available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction

[6] SARA (Species at Risk Act) Status and Schedule
Federal status from the Government of Canada's Species at Risk Public Registry (Status as of February 28, 2020)
http://www.registrelep-sararegistry.gc.ca/
The Act establishes Schedule 1, as the official list of species at risk in Canada. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed species are implemented. 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

EXT: Extinct – A species that no longer exists.
EXP: Extirpated – A species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END: Endangered – A species that is facing imminent extirpation or extinction.
THR: Threatened – A species likely to become endangered if limiting factors are not reversed.
SC: Special Concern – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats

[7] SARO (Species At Risk in Ontario)
Provincial status from MNRF (Status as of February 28, 2020)
https://www.ontario.ca/environment-and-energy/species-risk-ontario-list

The provincial review process is implemented by the MNR's Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent advisory panel to the Ontario Ministry of Natural Resources and Forestry that assesses the status of species at risk of extinction.
EXP: Extirpated – Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
END: Endangered – Lives in the wild in Ontario but is facing imminent extinction or extirpation.
THR: Threatened – Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
SC: Special Concern – Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

[8] Regional Status

Carolinian Zone
Oldham, Michael J. 2017. List of the Vascular Plants of Ontario's Carolinian Zone (Ecoregion 7E). Carolinian Canada and Ontario Ministry of Natural Resources and Forestry. Peterborough, ON. 132 pp.

Rankings within each jurisdiction within the Carolinian Zone are based on "previous lists, personal communications, and the author's knowledge of the Carolinian Zone flora. An overall status in the Carolinian Zone is provided based on status in each of the 11 areas and general knowledge of the Carolinian Zone flora."

Codes are defined as follows (**CZ Status Column Only**)
H: Historic. Native in all Carolinian Zone areas and no known records for at least 30 years in all areas where native and ranked (i.e. not X). Occasionally used for a native species known to be extirpated from its only known Carolinian Zone location(s)
R: Rare. Native to the Carolinian Zone and (a) rare (as defined in source lists; sometimes including "very uncommon") or historic (no records in≥30 years) in more than half of the Carolinian Zone areas (≥6) in which it is native and ranked (i.e. not X); or (b) if rare or historic in <6 areas it must be uncommon or common in no more than one area.
U: Uncommon. Native in the Carolinian Zone and (a) listed as common in no more than one Carolinian Zone area; and (b) not rare or historic in more than half of the Carolinian Zone areas ≥6) in which it is native and ranked (i.e. not X).
C: Common. Native in the Carolinian Zone and (a) common in at least two Carolinian Zone areas; and (b) not rare or historic in more than half of the Carolinian Zone areas ≥6) in which it is native and ranked (i.e. not X).
X: No status. Present and native in the Carolinian Zone but no status assigned because of lack of information, often due to confusion with similar species.
I: Introduced. A non-native (exotic) species that is established (or was formerly established) outside of cultivation in the Carolinian Zone.
CZ: Restricted in Ontario as a native species to the Carolinian Zone
cz: Nearly restricted in Ontario as a native species to the Carolinian Zone (approximately 90%+ records)

Note: In a few cases, based on professional opinion, Carolinian Zone status ranks departed from the above criteria, particularly if the species is not ranked (i.e. X) in at least four Carolinian Zone areas

Haldimand-Norfolk County
Oldham, Michael J. 2017. List of the Vascular Plants of Ontario's Carolinian Zone (Ecoregion 7E). Carolinian Canada and Ontario Ministry of Natural Resources and Forestry. Peterborough, ON. 132 pp.

Rankings are based on "previous lists, personal communications, and the author's knowledge of the Carolinian Zone flora."

Codes are defined as follows:
H: Historic. Native and no known records for at least 30 years.
R: Rare
U: Uncommon
C: Common
X: Present. Native but no status assigned because of lack of information, often due to confusion with similar species.
I: Introduced. A non-native (exotic) species that is established (or was formerly established) outside of cultivation.

[9]Native Status
Based on VASCAN and NHIC (February 28, 2020)

VASCAN http://data.canadensys.net/VASCAN/search
NHIC: https://www.sdc.gov.on.ca/sites/MNRF-PublicDocs/EN/ProvincialServices/ONTARIO_SPECIES_LISTS.zip

Codes are defined as follows:
N Native
I Introduced

APPENDIX

F REPRESENTATIVE PHOTOGRAPHS

LEIP: MAM2-2 – Reed-canary Grass Mineral Meadow Marsh type toward the south side of the subject site. Looking south. October 12, 2021.

LEIP: MAM2-10 – Forb Mineral Meadow Marsh type south of the SWM ponds. Looking north. October 12, 2021.

LEIP: SWM pond to the west of the subject site. Looking east. October 12, 2021.

LEIP: CUM1-1 – Dry – Moist Old Field Meadow type toward the north side of the subject site. Looking east. October 12, 2021.

LEIP: SWD2-2 – Green Ash Mineral Deciduous Swamp type toward the north side of the subject site. Looking south. October 12, 2021.

LEIP: OAGM1 – Annual Row Crops toward the north side of the subject site. Looking east toward the Stelco industrial lands. October 12, 2021.

LEIP: OAGM1 – Annual Row Crops (soy) toward the east side of the subject site. Looking south. October 12, 2021.

LEIP: FOD7-4 – Fresh – Moist Black Walnut Lowland Deciduous Forest type toward the south side of the subject site. Looking south. October 12, 2021.

LEIP: MAM2-10 – Forb Mineral Meadow Marsh type toward the south side of the subject site. Looking east. October 12, 2021.

LEIP: Understorey of FOD9 – Fresh – Moist Oak – Maple – Hickory Deciduous Forest type toward the east side of the subject site. Looking north. October 12, 2021.

LEIP: MAS2-1 – Cattail Mineral Shallow Marsh type south of the subject site. Looking west. October 12, 2021.

LEIP: CUP1 – Deciduous Plantation type south of the subject site south of New Lakeshore Road. Looking south. October 12, 2021.

LEIP: Watercourse 1: unnamed tributary within agricultural fields. Looking downstream. October 13, 2021.

LEIP: Watercourse 1: unnamed tributary within a naturalized area. Looking downstream. October 13, 2021.

LEIP: Watercourse 2: Centre Creek at the box culvert of the New Lakeshore Road crossing – main channel. Looking upstream. October 13, 2021.

LEIP: Watercourse 2: Centre Creek within the historically straightened northern portion of the Creek adjacent to Stelco property. Looking upstream. October 13, 2021.