

ENVIRONMENTAL IMPACT STUDY



April 15, 2022

518-524 Tiffin Street
City of Barrie

Prepared for: Pioneer Family Pools



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1 INTRODUCTION

Roots Environmental ('Roots') has been retained by Pioneer Family Pools to complete an Environmental Impact Study (EIS) for the properties located at 518-524 Tiffin Street in the City of Barrie.

An Environmental Impact Study (EIS) is required to support the Official Plan Amendment, Zoning By-Law Amendment (ZBA) and Site Plan Application for the development. It is our understanding applications are intended to permit the proposed uses on the properties in conformity with the new City of Barrie Official Plan.

The subject property is entirely designated Environmental Protection Area (EPA) according to Schedule A: Land Use in the current City of Barrie Official Plan. It should be noted that the new draft Official Plan (2021) designates the property as "Employment Area". The subject properties are located within a Level 1 and Level 3 natural heritage, and adjacent to a 'Level 1 with Existing Development Designation Subject to 3.5.2.4 d' feature based on Schedule H of the current Official Plan. However, based on a site inspection and analysis, there are no significant natural heritage features directly on the property.

Policy 4.7.2.3 c) of the City of Barrie Official Plan illustrates that an application to redesignate lands designated Environmental Protection Area (EPA) must be supported by an Environmental Impact Study (EIS).

The property is regulated by the Lake Simcoe Region Conservation Authority (LSRCA) under Ontario Regulation 179/06 of the *Conservation Authorities Act*. A permit will be required for the proposed development.

The purpose of the EIS is to identify the presence of any natural heritage features on the site or adjacent lands of 120 metres, assess any impacts as a result of the proposed development, and identify any preventative, mitigative or remedial measures to ensure no negative impacts.

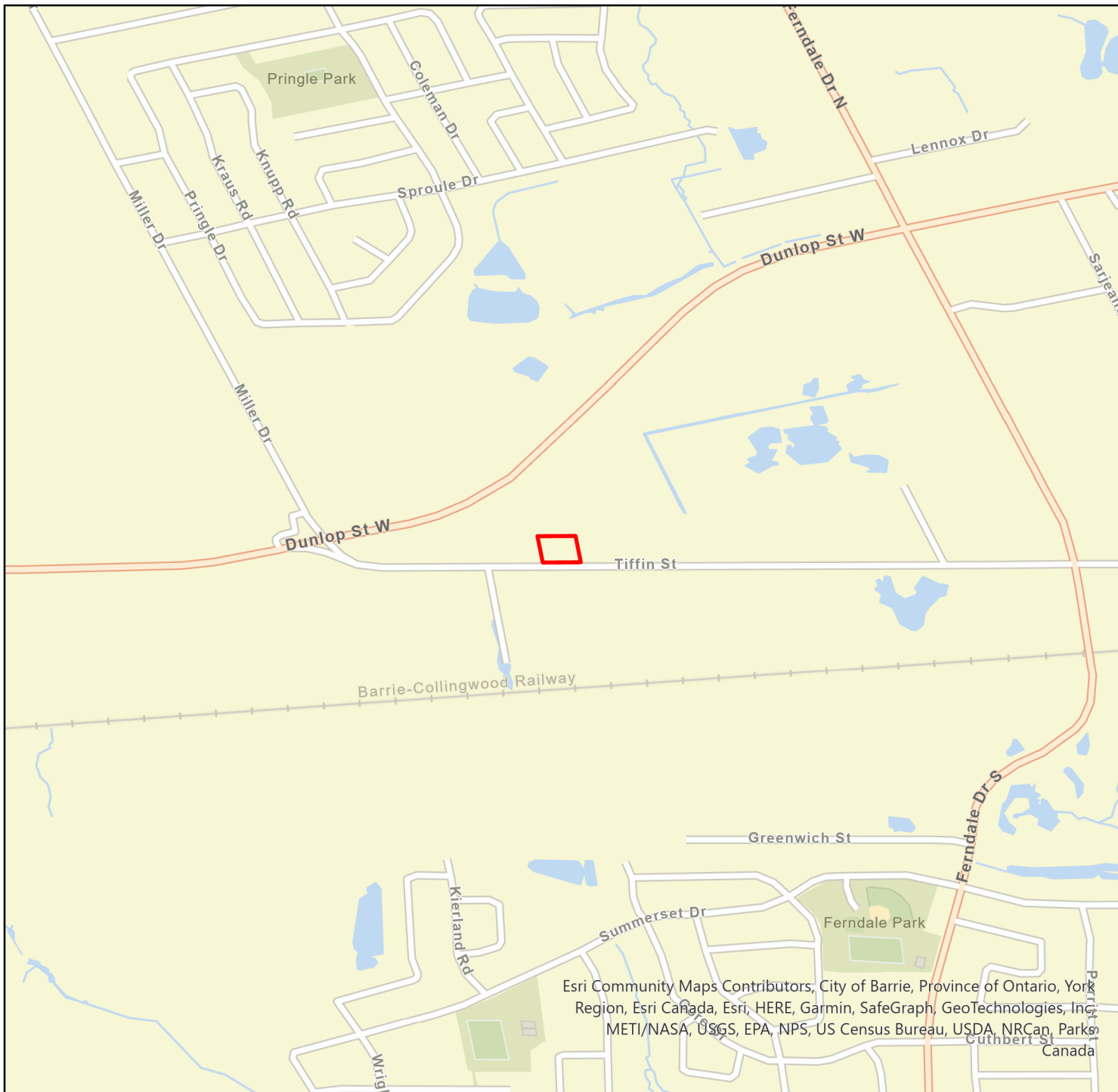
1.1 Site Location

The site includes four properties located at 518-524 in the City of Barrie as shown on *Figure 1 – Site Location*. The site has a total area of 0.49 ha (1.21 acres). Current use on the properties includes storage of machinery and landscaping materials. An existing structure is present in the north part of 518 Tiffin St.

The Study Area for this EIS includes the entire subject property and adjacent lands of 120 metres.

1.2 Proposed Development

The proposed development will continue the existing uses, being a storage yard for landscaping materials, pool supplies, and machinery as shown on *Figure 2- Site Plan*. Access to the development will continue from Tiffin Street.



Legend

 Subject Properties

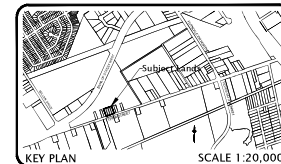
ENVIRONMENTAL IMPACT STUDY

Figure 1
Site Location

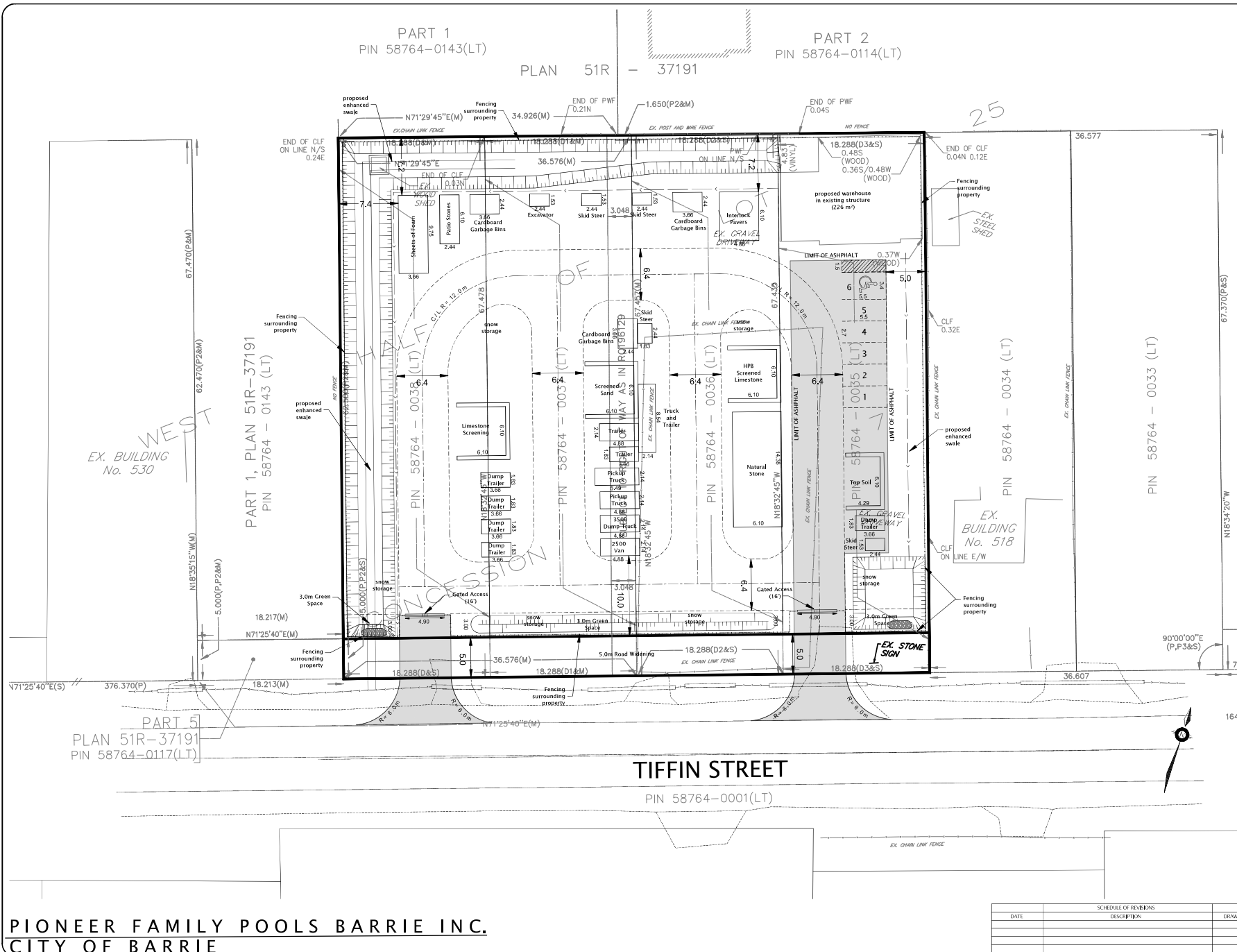
Pioneer Pools
518-524 Tiffin Street
City of Barrie



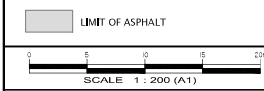
Esri Community Maps Contributors, City of Barrie, Province of Ontario, York Region, Esri Canada, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada



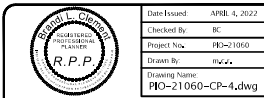
Concept Plan 4
Plan of Survey of
Part of West Half of Lot 25,
Concession 7
(Geographic Township of Vespra)
City of Barrie
County of Simcoe, 2022



Subject Lands 4934.5 m ²		
Zoning Table 4.6 - parking standards		
	Required	Provided
Warehouse = 1 space per 1000 m ² gfa	1 Space	1 Space
Outdoor Storage = 1 space per 1000 m ² of lot area,	5 Spaces	5 Spaces
Total	6 Spaces	6 Spaces



PIONEER FAMILY POOLS BARRIE INC.
CONCEPT PLAN



JONES
CONSULTING GROUP LTD.
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223 Midland Drive East Unit 1, Downs, Ontario L4M 3M1
Phone: 705/745-0088 Fax: 705/745-0086
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SCHEDULE OF REVISIONS		
DATE	DESCRIPTION	DRAW

2 RELEVANT ENVIRONMENTAL POLICIES

A review of relevant environmental legislation, plans, and policies will be included in Section 7 of this EIS. This review will include the Provincial Policy Statement, Growth Plan for the Greater Golden Horseshoe, Lake Simcoe Protection Plan, and City of Barrie Official Plan.

3 METHODOLOGY

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

Due to seasonal requirements for surveys required under the Terms of Reference for the EIS, further investigations will be needed in the spring and summer of 2022. These additional surveys will be included as recommendations in this EIS.

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

3.1 Consultation with Agencies

3.1.1 Lake Simcoe Region Conservation Authority

Pre-consultation comments were provided from the LSRCA dated September 24, 2021. Per LSRCA comments, a Terms of Reference for the EIS were submitted and approved by LSRCA with revisions in their email of February 4, 2022. The Terms of Reference and LSRCA correspondence are included in Appendix A.

3.2 Desktop Review

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

- The Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) Make A Map: Natural Heritage Areas;
- County of Simcoe interactive mapping;
- Ontario Nature Reptile and Amphibian Atlas;
- Atlas of Breeding Birds of Ontario; and
- LSRCA Regulation Mapping.

3.3 Field Investigations

Site investigations were completed on October 15 and November 25, 2021, to document existing conditions in the proposed development area and adjacent lands, and to preliminarily delineate the boundaries of mapped unevaluated wetlands on adjacent lands to the property.

Vegetation communities were identified using the Ecological Land Classification (ELC) for Southern Ontario, First Approximation (Lee et al., 1998). Polygons were delineated using aerial photography,

field sampled and classified into the most appropriate vegetation type. The polygons were identified based on vegetative cover, soils and landscape features.

Per the agreed upon Terms of Reference with the LSRCA, the following field investigations will be completed in 2022:

- Three amphibian surveys in accordance with the Marsh Monitoring Protocol;
- Two breeding bird surveys,
- A two-season vegetation survey (late spring and summer);
- An assessment of potential aquatic habitat associated with the drainage feature/watercourse mapped along Tiffin Street; and
- Delineation of the wetland/woodland boundaries with LSRCA staff.

4 EXISTING CONDITIONS

4.1 Desktop Review

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

A search was completed using the MNRF NHIC Make-A-Map: Natural Heritage Areas online geographic query tool for occurrence square 17PK0113. Occurrences may include those beyond the subject property and on habitats suitable to those species.

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

- Bear Creek Wetland (Provincially Significant)
- Houghton's Flatsedge (*Cyperus houghtonii*)
- Snapping Turtle (*Chelydra serpentina*) (Special Concern) (SC)

Unevaluated wetlands were noted in NHIC mapping on adjacent lands to the north of the property. Features identified through the query are shown on *Figure 3- NHIC Mapping* and the results of this query are included in Appendix B.

4.1.2 County of Simcoe Interactive Mapping/Official Plan

County of Simcoe Interactive Mapping (<https://maps.simcoe.ca/public/>) identifies the presence of unevaluated wetlands on adjacent lands to the south and west of the property, a watercourse identified by LSRCA as a tributary to Dymont's Creek along the south boundary of the property and the Bear Creek Provincially Significant Wetland (PSW) to the southeast of the site.

4.1.3 Ontario Nature Reptile and Amphibian Atlas

A geographic query of occurrence square 17PK01 was completed using the Ontario Natural Reptile and Amphibian Atlas for observations of species collected from 1970-2019 within a 10-km square. Occurrences will include those beyond the subject property and on habitats suitable to those species. A summary of the search is included in Appendix B.

Four SAR were found in the search:

- Blanding's Turtle (*Emydoidea blandingii*) (Threatened) (THR);
- Northern Map Turtle (*Graptemys geographica*) (SC);
- Snapping Turtle (SC); and
- Five-lined Skink (*Plestiodon fasciatus*) (SC).

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



Figure 3: NHIC Mapping

(https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage&locale=en-CA)

4.1.4 Atlas of Breeding Birds of Ontario

A geographic query of occurrence square 17PK01 was completed using the Atlas Breeding Birds of Ontario for observations of species collected from 2001-2005. It is noted that these occurrence squares encompass a large area that includes the subject property. Occurrences will include those beyond the subject property and habitats suitable to those species.

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

- Common Nighthawk (*Chordeiles minor*) (SC)
- Eastern Whip-poor-will (*Antrostomus vociferus*) (THR)
- Red-Headed Woodpecker (*Melanerpes erythrocephalus*) (Endangered) (END)
- Chimney Swift (*Chaetura pelagica*) (THR)
- Eastern Wood-Pewee (*Contopus virens*) (SC)
- Barn Swallow (*Hirundo rustica*) (THR)
- Bank Swallow (*Riparia riparia*) (THR)
- Wood Thrush (*Hylocichla mustelina*) (SC)
- Bobolink (*Dolichonyx oryzivorus*) (THR)
- Eastern Meadowlark (*Sturnella magna*) (THR)

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

4.1.5 LSRCA Regulation Mapping

The entire property is Regulated Area by the LSRCA.

4.2 Field Investigations

4.2.1 Vegetation Communities/Flora

Vegetation communities were identified on site using ELC to the vegetation type. Adjacent lands are classified to the Ecosite where possible. Provided below are descriptions of communities, which are shown on *Figure 3 – Ecological Land Classification* and *Table 1 – Site Photos*.

Red Maple Organic Deciduous Swamp Type (SWD6-1)

This community, found on adjacent lands to the northwest, is dominated largely by Red Maple (*Acer rubrum*) with associates of Poplar (*Poplar* spp.) and Ash (*Fraxinus* spp.) species.

Groundcover at the time of the investigation included Red-Osier Dogwood (*Cornus servicea*), Sensitive Fern (*Onoclea sensibilis*) and Royal Fern (*Osmunda regalis*). Additional investigations of species will occur in the spring and summer of 2022 per LSRCA requirements.

A small area of Forb Mineral Meadow Marsh Type (MAM2-10) is present on adjacent lands immediately west of the subject property. This area is a narrow band of wetland vegetation that is present within an access point from Tiffin Street to the adjacent property to the north. Site observations from the edge of the subject property found it to be largely disturbed and contained no significant attributes.

ANTHRO (Anthropogenic)

This area consists of the existing subject property that is currently utilized as a storage yard. A building is present in the northeast corner of the property, accessory buildings in the northwest and along the rear property line, and pool/landscaping supplies and machinery within the central part. Occasional trees are present within the storage yard, Manitoba Maple (*Acer negundo*), Norway Spruce (*Picea abies*), and Hard Maple (*Acer saccharum*).



Legend

- Subject Properties
- Ownership Parcels
- Bear Creek PSW (MNRF)
- Unevaluated Wetlands (Aerial Photography)
- Watercourse (Dymment Creek)

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Figure 4
Existing Conditions

Pioneer Pools
518-524 Tiffin Street
City of Barrie



Table 1: Site Photos

	
Existing disturbed area looking southeast from northwest corner (ELC: ANTHRO).	Existing building in northeast corner (ANTHRO).
	
Existing disturbed area looking north from southwest corner (ANTHRO). Abutting unevaluated visible in background.	Red Maple Swamp (SWD6-1) from northwest property limit looking northwest.
	
West border of subject properties looking south from northwest corner. Adjacent narrow band of wetland visible (MAM2-10).	Open area (CUM1-1) north of property.

Initial surveys completed for the property found no rare species or SAR. All species were found to be common to similar habitats found in Ontario or are listed as non-native/exotic species. Further surveys in 2022 will be completed to identify any significant species (rare or SAR) abutting the development.

4.2.2 Wildlife

Wildlife surveys will be completed per LSRCA requirements in the spring of 2022 to determine presence of potential significant habitat on adjacent lands to the north. No native habitats are present on the subject property. It is anticipated that there will be no impacts to adjacent unevaluated wetland and woodland habitats to the north as a result of development. This property has been cleared and developed since at least 1978 as shown on Table 2 below.

Table 2: Historic Aerial Photography

	
1978	1997
	
2008	2013

5 ANALYSIS OF NATURAL HERITAGE FEATURES

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

5.1 Significant Wetlands (and Coastal Wetlands)

A review of NHIC mapping and County of Simcoe Interactive Mapping found the presence of the Bear Creek Provincially Significant Wetland approximately 38 metres to the southeast of the subject property across Tiffin Street as shown on Figure 4.

As this PSW is within adjacent lands of 120 metres, an impact assessment is provided in Section 6.

5.2 Other Wetlands (Unevaluated, Non-Provincially Significant)

A review of the MNRF NHIC mapping, County of Simcoe Interactive Mapping identified the presence of unevaluated wetlands on adjacent lands to the north of the subject property. A small area of additional unevaluated wetland was also identified during field investigations to the west of the property as shown on Figure 4.

These wetlands to the north are identified as a ‘Level 1 with Existing Development Designation Subject to 3.5.2.4 d’ in the City of Barrie Official Plan (2018) (Schedule H).

As this wetland is identified as a Natural Heritage Resource in the Official Plan and is within adjacent lands of 120 metres, an impact assessment is provided in Section 6.

5.3 Significant Woodlands

The City of Barrie Official Plan identifies the subject property as a Level 1 Natural Heritage Resource. No natural heritage resources were identified on the subject property.

Adjacent lands to the north of the subject property are identified as a ‘Level 1 with Existing Development Designation Subject to 3.5.2.4 d’ and ‘Level 3’ features. The limit of these overlays corresponds with unevaluated wetlands and woodlands mapped to the north.

Based on the size/extent of woodland cover that is found on adjacent lands to the north, it is likely this feature would be identified as Significant.

An assessment of potential impacts is provided in Section 6 below.

5.4 Significant Valleylands

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

5.5 Significant Wildlife Habitat

As analysis of candidate Significant Wildlife Habitat has been completed using the “*Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E*” (MNR 2015) based on the results of the desktop review and field surveys. This assessment is included as Appendix D. The following features were identified as having potential to be found on adjacent lands to the north of the subject property:

- Amphibian Breeding Habitat (Woodlands); and
- Special Concern and Rare Wildlife Species.

Further field investigations in 2022 will be completed to confirm the presence/absence of these SWH.

An assessment of potential impacts is provided in Section 6 below.

5.6 Significant Areas of Natural and Scientific Interest

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

5.7 Fish Habitat

County of Simcoe Mapping and LSRCA correspondence identify the presence of a section of Dymont's Creek along the southern boundary of the property.

As this feature is within 120 metres of the subject property, an assessment of potential impacts is provided in Section 6 below.

5.8 Habitat of Endangered Species and Threatened Species

No habitat for threatened or endangered species were identified by field investigations on the subject property. It is anticipated that as there will be no removal of any potential habitat found on adjacent lands, there will no contravention of the *Endangered Species Act* (ESA). Further surveys in 2022 will be completed to confirm the presence/absence of these habitats on adjacent lands were feasible due to private lands.

6 IMPACT ASSESSMENT

This section will assess potential impacts to these features and ecological functions as a result of the proposed development and provides mitigation measures to ensure no negative impacts. This report utilizes the definition of a “negative impact” in the PPS (Page 47) “*in regard to other natural heritage features and areas, degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities.*”

A summary of compliance with the PPS, Growth Plan, LSPP and City of Barrie Official Plan as it relates to policies regarding the natural environment is provided in Section 7.

6.1 Significant Wetlands

The Bear Creek Provincially Significant Wetland is found within adjacent lands across Tiffin Street as shown on Figure 4. No development will occur in this wetland.

The current property limits are approximately 38-metres from the northwest limit of the mapped PSW. A 5-metre conveyance to the City of Barrie is required along Tiffin Street for the applications. This will increase the setback to 43 metres.

It is anticipated that there will be no loss of drainage area to this wetland. All drainage on site will be controlled, treated through vegetated swales and outlet to roadside ditches (mapped as a tributary of Dymont's Creek), which flows west, away from the PSW.

As there will be no direct removal of wetland habitat and no loss of drainage, and the property is separate from the PSW by a setback of 43-metres (post-development) and Tiffin Street, we anticipate no negative impacts.

6.2 Other Wetlands (Unevaluated)

Unevaluated wetland is mapped by NHIC abutting the northwest corner of the property. A preliminary wetland delineation was completed in the fall of 2021 as shown on Figure 4. A revised wetland boundary will be completed on-site with LSRCA staff in the late spring 2022 per their requirements.

No site alteration or removal of this wetland is planned through the development applications. All unevaluated wetlands will be preserved.

The subject site soils consist of Muck and very high ground water (0.7 to 1.0m) below grade, as such it produces very little infiltration in the pre-development condition and no infiltration from the vegetated swales in the post condition as they are lined to separate groundwater from surface run-off.

Within the subject properties abutting the unevaluated wetlands, the site is entirely cleared and has been developed for over 50 years (see Table 2 above and site photos in Table 1) with no stormwater management on site. Per the Site Plan, a 7-metre swale will be constructed along the west and north border of the property to properly drain and treat water on site. This swale will be planted with native plant material and provide a naturalized buffer area between existing uses on site and the wetland abutting the west and northwest border of the properties.

Within the northwest corner abutting the wetland, a 10-metre vegetation protection zone, shown on *Figure 5 – Mitigation Measures*, from the wetland limit will be maintained with existing tree cover that overlaps the property line. Post-grading, this area will be planted with non-invasive, native plantings to enhance the protection zone.

Based on the historic uses on site, enhancements to stormwater management on site, and restoration/enhancement of the setbacks abutting the wetland, we anticipate no negative impacts.

6.3 Significant Woodlands

The identification of Significant Woodlands on site and adjacent lands to the north is based on the identification of 'Level 1 with Existing Development Designation Subject to 3.5.2.4 d' in Schedule H of the



Legend

- Subject Properties
- Ownership Parcels
- Unevaluated Wetlands (Aerial Photography)
- Watercourse (Dymment Creek)
- Drainage Swale (to be planted)
- VPZ to be restored
- 5-metre Conveyance

ENVIRONMENTAL IMPACT STUDY

Figure 5
Mitigation Measures

Pioneer Pools
518-524 Tiffin Street
City of Barrie



16 8 0 16 32 48 64
Meters

City of Barrie Official Plan. It is unknown if this overlay pertains to unevaluated wetland also mapped to the north of the subject property or the presence of woodland cover.

These woodlands/wetlands are part of a larger woodland/wetland feature to the north that is approximately 11.3-ha in size.

Within the subject properties, woodland cover that is continuous with treed areas to the north totals approximately 0.04-ha. Individual trees may be removed during development of the site (for Stormwater Management). This area will be restored post-grading and planted with native species to enhance previously disturbed areas and provide a vegetated setback to adjacent treed areas. Remaining woodland cover abutting the site to the north will still meet the criteria for significance of greater than 10 ha for a Level 1 feature, thereby meeting the test for no negative impact.

Woodlands on the property would be considered low-quality, as all understory has been removed and the area has been utilized for development for over 50 years.

Any restoration of this area is considered a net benefit to the existing conditions in this area abutting the woodlands (and unevaluated wetlands).

As development of the site will not result in the loss of significance to Significant Woodlands in relation to overall size and adjacent wooded areas to the north will be maintained, no negative impacts are anticipated.

6.4 Significant Wildlife Habitat

Potential Significant Wildlife Habitat may be present to the north/northwest of the subject properties, coinciding with woodland and wetland habitats. No removal of these potential habitats will occur as a result of development. 0.04 ha of woodland cover on the property, which contains no understory or native groundcover and is presently used for storage (including a small accessory building), would not be considered part of these habitats.

Per LSRCA requirements, surveys to confirm presence/absence of this Significant Wildlife Habitat will occur in 2022.

The subject properties have been developed for over 50 years. It is expected that any wildlife species currently utilizing these potential habitats are tolerant of present uses on site and those on adjacent properties. No change in use of the site is proposed. Enhancement/restoration in the northwest corner of the properties post-grading will provide a buffer to these potential features on adjacent lands.

As no change in use is proposed and enhancement/restoration of a vegetation protection zone will occur post development, no negative impacts are anticipated.

6.5 Fish Habitat

A tributary of Dymont's Creek has been identified along the south edge of the current property boundary. This tributary is part of an open ditch system along Tiffin Street and contains no fish habitat (i.e., defined channel, structure).

As part of future development approvals, a 5-metre section of the southern part of the subject properties will be conveyed to the City of Barrie. This area directly abuts the location of the tributary. No enhancement opportunities are feasible.

Presently, no stormwater management exists for the properties. Enhanced SWM on site as a result of the proposed applications will provide a benefit to this tributary, by treating water as it leaves the site.

As no works will occur in this watercourse/ditch, lands abutting it will be conveyed to the City of Barrie and enhanced SWM will be developed for the site, we anticipate no negative impacts to this feature.

6.6 Additional Recommendations

To avoid potential direct impacts to bird species (i.e., destruction of nests) protected under the *Migratory Birds Convention Act*, it is recommended that no clearing of vegetation occur between April 5 – August 27th per Environment Canada's general nesting periods of migratory birds (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html#_zoneC_calendar).

7 COMPLIANCE WITH PLANNING POLICIES

The following tables provide a summary of planning policies and rationale for compliance with the Provincial Policy Statement, Growth Plan, Lake Simcoe Protection Plan, and City of Barrie Official Plan for the proposed development. This environmental policy conformity was undertaken by Charles F. Burgess, MCIP, RPP of Burgess Gleason Environmental.

Table 3: Provincial Policy Statement

Section	Policy	Policy Consistency
2.1.3	Natural heritage systems shall be identified in Ecoregions 6E and 7E ¹ recognizing that they will vary in size and form in settlement areas, rural areas, and prime agricultural areas.	The Natural Heritage System (NHS) is illustrated on the Schedules of the City of Barrie's Official Plan. Based on these Schedules, the subject property is located in the Level 1 and Level 3 Categories of the NHS and, as a result, the appropriate environmental policies will apply.
2.1.4	Development and site alteration shall not be permitted in significant wetlands and coastal wetlands.	There are no significant wetlands or coastal wetlands on the subject property.
2.1.5	Development and site alteration shall not be permitted in valleylands, woodlands, wildlife habitat, and ANSI that are significant including coastal wetlands unless it has been demonstrated that there will be no	The subject property is located adjacent to a significant woodland and significant wildlife habitat based on an assessment of existing information and site evaluations. As a result, no new development will be located in these natural heritage features. On this basis, there

	negative impacts on the natural feature and their ecological functions.	will be no negative impact from the proposed land use change on these adjacent features.
2.1.6	Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.	There are no watercourses or fish habitat on the subject property.
2.1.7	Development and site alteration shall not be permitted in habitat of endangered species and threatened species except in accordance with provincial and federal requirements.	The field inspection and evaluation has demonstrated that the property does not contain the habitat of endangered or threatened species. As a result, the provisions of the Endangered Species Act will be met through this land use change process and development.
2.1.8	Development and site alteration shall not be permitted on adjacent lands to features identified in 2.1.4, 2.1.5, and 2.1.6 unless it has been demonstrated that there will be no negative impacts.	It has been demonstrated that there will be no negative impacts on the adjacent Significant Woodland and Significant Wildlife Habitat. It is noted that a vegetation protection zone will be provided which will help buffer these features.

Table 4: Growth Plan

Section	Policy	Policy Conformity
4.2.2, 4.2.3, 4.2.4	These policies refer to the identification of the provincial Natural Heritage System and the protection of key natural heritage features, key hydrologic features, and key hydrologic areas.	The subject property is located on Tiffin Street within the City of Barrie. Barrie has been defined as an Urban Growth Centre or Settlement Area in accordance to the Growth Plan. As a result, the NHS and associated policies do not apply to the subject lands and associated planning applications based on sections 4.2.2.1, 4.2.3.1, and 4.2.4.1 of the Growth Plan.

Table 5: Lake Simcoe Protection Plan (2009)

Section	Designation	Conformity
6.32-DP	Policies 6.32-6.34 apply to existing settlement areas and adjacent littoral zones, and these areas are not subject to policies 6.1-6.3, 6.5, 6.11, and 6.20-6.29.	The property is located in a settlement area and, on this basis, it is acknowledged that these policies apply to this land use proposal.

6.33-DP	An application for development and site alteration shall, where applicable, improve fish habitat, include landscaping, minimize urban stormwater runoff, and establish/increase the vegetation protection zone adjacent to Lake Simcoe.	Through this land use proposal, proper storm water management and landscaping including a vegetation protection zone to the adjacent woodland and wetland will be provided.
6.34-DP	If a buffer is required to be established as a result of the application of the PPS, then the buffer shall be composed of and maintained as natural self-sustaining vegetation.	Based on this analysis, a 10 meter buffer will be provided to the wetland located to the north of the property. Further, landscaping will be instituted as part of the Site Plan Approval process under Section 41 of the <i>Planning Act</i> .
6.35-DP	For lands incorporated into a settlement area after the effective date of this Plan, the policies of Chapter 6 apply other than 6.32-6.34.	The subject property has been located in a defined settlement area prior to 2009. As a result, policies 6.32-6.34 apply to this application.

Table 6: City of Barrie Official Plan

Schedule	Designation	Conformity
Schedule A to the Official Plan (OP)	The subject property is entirely designated Environmental Protection Area (EPA) according to the Land Use Schedule to the Official Plan.	Notwithstanding this environmental designation, the property consists of an existing driveway, compound, parking area, and building. As a result, there are no significant natural heritage features on the property that reflect the EPA designation. It should be noted that the new draft Official Plan (2021) designates the property as "Employment Area".
Schedule F to the Official Plan	This Schedule shows the Conservation Authority Regulation Limits, watercourses, and associated setbacks.	Based on this Schedule, the subject property is located within a LSRCA Regulation Limit. On this basis, a permit will be required from the LSRCA prior to any development on the property.
Schedule H to the Official Plan	This Schedule illustrates the Natural Heritage Resources within the City based on a Three Level System.	The subject property is located within a Level 1 and Level 3 natural heritage feature based on this Schedule. However, based on a site inspection and analysis, the property consists of an existing compound, parking area, and building. As a result, there are no significant natural heritage features on the property.
Schedule J to the	This Schedule shows the watershed boundary of Lake Simcoe.	The subject lands are within the watershed boundary of Lake Simcoe. Based on this, the applicable policies of the Lake Simcoe

Official Plan		Protection Plan apply to this development proposal.
Policy 4.7.2.3 c)	This policy illustrates that an application to redesignate lands designated Environmental Protection Area (EPA) must be supported by an Environmental Impact Study (EIS).	The preparation of this Natural Heritage Evaluation or Environmental Impact Study helps fulfill this policy requirement related to an evaluation of development within the EPA designation. The EIS also addresses the provisions of the <i>Endangered Species Act</i> .
Policy 4.7.2.3 d)	This policy states that any EIS must demonstrate that there will be no negative impacts to the natural heritage features.	Based on the site inspection and associated analysis, it has been determined that there will be no negative impact on the areas' natural heritage features. It should be noted that the property is located adjacent to a significant woodland and wildlife habitat and is devoid of any natural heritage features.
Policy 4.7.2.6	This policy refers to the protection of woodlands and hedgerows.	The subject property is devoid of any significant woodland. It is noted that a significant woodland exists to the northwest of the property. All development will be located outside the adjacent woodland feature. As a result, there will be no negative impacts on the adjacent woodland feature.
Policy 4.7.2.7	This policy identifies the need to protect significant wildlife habitat.	The subject property is devoid of any significant wildlife habitat. It is noted that significant wildlife habitat exists to the northwest of the property. All development will be located outside the adjacent wildlife habitat. On this basis, there will be no negative impacts on the adjacent natural heritage feature.

8 CONCLUSIONS

Roots Environmental has been retained to complete an Environmental Impact Study for the properties known as 518-524 Tiffin Street in the City of Barrie in support of planning applications intended to bring the proposed uses on the properties into conformity with the new City of Barrie Official Plan.

Provided development occurs as shown on Figure 2 and mitigation measures in this report are implemented, we anticipate no negative impacts to identified natural heritage features as a result of the proposed development.

Respectively submitted by Roots Environmental:

A handwritten signature in blue ink, appearing to read "Kyle Fleming", with a stylized flourish at the end.

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

REFERENCES

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

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

Natural Heritage Information Centre (NHIC) Database. 2021. Provincial Status of Plants, Wildlife and Vegetation Communities Database. Ministry of Natural Resources and Forestry, Peterborough.

Ontario Ministry of Natural Resources and Forestry. January 2015. Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E.

The City of Barrie. Office Consolidation 2018. The City of Barrie Official Plan.

APPENDIX A

Agency Correspondence

1. General Information:

Date: _____

Address: _____

Name of consulting firm: _____

Contact information: _____

2. Identify all potential natural heritage and hydrologic features in the study area (check all that apply):

**The LSRCA recognizes that this is a preliminary assessment to determine what studies may be suitable for the property. A site visit may be required to verify the presence/absence of features.*

- | | |
|---|---|
| ☐ Wetland | ☐ Drainage feature/watercourse |
| ☐ Woodland | ☐ Kettle lake |
| ☐ Valleyland | ☐ Seepage area or spring |
| ☐ Grassland or meadow | ☐ Lake or pond (and their littoral zone) |
| ☐ Wildlife habitat | ☐ Lake Simcoe shoreline |
| ☐ Area of natural and scientific interest (ANSI) | ☐ Natural areas abutting Lake Simcoe |
| ☐ Sand barren, savannah or tallgrass prairie | ☐ Habitat of endangered and threatened species |
| ☐ Alvar | ☐ Fish habitat |

3. Activities to be undertaken and studies required for a complete NHE/EIS submission**:

*** Some activities/studies are pre-selected (☑) as they are a minimum requirement for NHE/EIS submissions.*

- ☒ Consult with the appropriate Municipal and Conservation Authority staff, as required, to establish the required scope of study.
- ☒ Identify an appropriate study area - generally the area of anticipated disturbance plus 120 m.
- ☒ Collect and include applicable background information and current environmental mapping for natural heritage and hydrologic features, and the natural heritage system within and surrounding the study area.
- ☒ Identify and provide detailed descriptions of natural heritage and hydrologic features in the study area, their function, and the broader natural heritage system that they are within. Determine the significance of these natural heritage and hydrologic features under applicable policy.
- ☒ Evaluate existing vegetation communities using Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998. Ecological Land Classification for Southern Ontario: first approximation and its applications. SCSS Field Guide FG-02). Provide a description of ELC communities in the study area and include completed ELC field sheets as an appendix.
- ☒ Conduct a _____-season vegetation inventory in the late spring/summer/fall. Include the inventory categorized by ELC community as an appendix and denote any Species at Risk and/or provincially/locally rare species.
- ☐ Conduct three (3) breeding amphibian surveys as per the Marsh Monitoring Program protocol (Bird Studies Canada). Observational salamander surveys may be required if potential habitat exists in the study area. Include completed field sheets as an appendix.

- ☐ Conduct two (2) dawn breeding bird surveys between May 24 and July 15, under appropriate conditions, with a minimum of 10 days between surveys, and record all occurrences and breeding behaviors. Point counts, wandering transects or a combination of the two must be used according to features present and site conditions. Include completed field sheets as an appendix. A third survey will be required if suitable grassland bird habitat is present.
- ☒ Record observations of all wildlife occurrences and behaviours and assess wildlife habitat function.
- ☒ Screen for Species at Risk (SAR), listed under the *Endangered Species Act, 2007*, based on existing or potential habitat. Additional species-specific surveys may be required if SAR habitat is present (e.g. butternut health assessments, snag surveys, bat acoustic monitoring surveys, evening whip-poor-will surveys, etc.), please contact the Ministry of Environment, Conservation and Parks (MECP) for further direction. Include any relevant correspondence with the MECP as an appendix
- ☒ Assess for Significant Wildlife Habitat (e.g. turtle nesting or wintering area, reptile hibernaculum, woodland raptor nesting habitat, seeps, springs, etc.) as per the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNR, January 2015).
- ☒ Identify any ecological linkages or movement corridors within the study area. Demonstrate how connectivity within and between natural heritage and hydrologic features will be maintained and, where possible, improved or restored to allow for the effective dispersal and movement of plants and animals.
- ☒ Provide a general description of the methodology, dates, timing, and locations of completed field surveys.
- ☐ Confirm the boundaries of any wetland and/or woodland features on the property through a staking exercise with the LSRCA. Boundary points must be surveyed with a high-accuracy GPS device (accurate to within 10 cm). A professional Ontario Land Surveyor (OLS) may be required to attend. Wetland staking exercises must be completed between June 15 and September 30 (exceptions may apply). Note that a site visit fee may apply.
- ☐ Complete an aquatic habitat assessment for all drainage features/watercourses in the study area, including characterization of hydrologic features (i.e. permanent, intermittent, ephemeral, headwater drainage feature) and suitability as fish habitat. Include a description of instream and riparian cover, bank stability, substrate composition, stream morphology, dimensions and gradient, thermal regime indicators, potential barriers, woody debris distribution, aquatic vegetation, groundwater seepage areas, etc.
- ☐ Complete a catchment-based water balance for the study area to assess how existing drainage conditions and moisture regimes that support sensitive hydrologic features (e.g. wetland, woodlands, watercourse) may be impacted by the proposed development. Demonstrate how current hydrologic inputs will be maintained post-development. Please note, the water balance assessment may also be a requirement under other provincial policies, therefore the NHE/EIS should coordinate with/summarize the water balance work undertaken by others.
- ☐ Recommend the dimensions of an appropriate vegetation protection zone (VPZ)/buffer to natural heritage and hydrologic features required to mitigate impacts from the proposed development. Recommendations for restoration/plantings should be provided for all buffers.
- ☒ Provide a detailed description of the proposed development.

- ☒ Map the following information separately on current high quality ortho-air photos:
 - 1) ELC vegetation communities, natural heritage and hydrologic features and their associated VPZs, and the proposed development and anticipated limit of disturbance (e.g. grading limits); and,
 - 2) ELC vegetation communities, survey locations, other environmental features (e.g. linkages, wildlife corridors, seeps, springs, stick nests, wildlife habitat, rare species, invasive species, etc.), and existing structures and/or trails.
- ☒ Assess the potential direct, indirect, and cumulative impacts of the proposed development on natural heritage and hydrologic features, the natural heritage system, and related ecological and hydrologic functions.
- ☒ Develop and provide an appropriate avoidance/mitigation/restoration strategy to address the potential impacts of the proposed development.
- ☒ Demonstrate how the proposed development is in conformity with all federal, provincial, regional, and municipal natural heritage policies applicable in the Lake Simcoe watershed.
- ☒ Complete one final report for circulation and approval, prepared by qualified professionals, in an electronic format as well as one (1) hard copy.

4. Additional studies or plans that may be required include:

- ☐ Landscape/Restoration/Planting Plan
- ☐ Edge Management Plan
- ☐ Tree Inventory/Arborist Report/Tree Preservation Plan
- ☐ Trails Impact Study
- ☐ Ecological Offsetting Strategy (please refer to [LSRCA's Ecological Offsetting Policy](#))
- ☐ Environmental Monitoring Plan/Report
- ☐ Fluvial Geomorphological Assessment
- ☐ Natural Channel Design

5. Additional notes and/or requirements:

Please note that changes to the study area, the proposed development, and/or policy changes may require additional information/studies.

Please provide current field survey data in the NHE/EIS submission. Field survey data will be considered valid for five (5) years from the date the survey was conducted, except for Species at Risk screenings, which are valid for one (1) year. If outdated field data is provided, additional surveys may be required.

Kyle Fleming

From: Erin Fitzpatrick <E.Fitzpatrick@lsrca.on.ca>
Sent: February 4, 2022 11:24 AM
To: Kyle Fleming
Cc: Liam Munnoch
Subject: 518-524 Tiffin St, Barrie - EIS TOR Checklist
Attachments: 518-524 Tiffin Street, Barrie_LSRCA Mapping.pdf; 518-524 Tiffin_EIS TOR checklist_EF edits.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Hi Kyle,

Thank you for providing the TOR Checklist for the EIS for the proposed development at 518-524 Tiffin Street, Barrie. I have reviewed the TOR and have made some additions to the scope of work (they are highlighted in yellow in the attached), and include:

- Additional *potential* natural heritage or hydrologic features in the study area (includes site and adjacent lands): drainage feature/watercourse/fish habitat, seepage area or spring, habitat for endangered or threatened species
- To determine the ecological function of the wetland/woodland on and adjacent to the site, please include:
 - o three amphibian surveys in accordance with the Marsh Monitoring Protocol
 - o two breeding bird surveys, and
 - o a two-season vegetation survey (late spring and summer)
- An assessment of potential aquatic habitat associated with the drainage feature/watercourse mapped along the roadside.

In addition to the wetlands north and south of the property, our mapping (attached) shows a watercourse, named Dymont Creek, along the southern perimeter of the site. From Google Earth street view, it appears to be a roadside ditch and is likely in a degraded state. During your investigations, please review this feature to determine potential hydrologic / ecological functions and considerations for development (including setbacks, etc.).

If the proposed development can be achieved without encroaching on the 15 m setback to the and 10 m setback to woodland, we could look at a reduced scope.

Please feel free to reach out if you have any questions or concerns about the proposed scope for the EIS.

Kind Regards,
Erin

Erin Fitzpatrick, M.Sc.
Natural Heritage Ecologist

Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
905-895-1281 ext. 286 | 1-800-465-0437 | Mobile: 289-716-5840
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Twitter: @LSRCA

Facebook: LakeSimcoeConservation

The information in this message (including attachments) is directed in confidence solely to the person(s) named above and may not be otherwise distributed, copied or disclosed. The message may contain information that is privileged, confidential and exempt from disclosure under the Municipal Freedom of Information and Protection of Privacy Act and by the Personal Information Protection Electronic Documents Act. If you have received this message in error, please notify the sender immediately and delete the message without making a copy. Thank you.

APPENDIX B

Desktop Review

NHIC Data

To work further with this data select the content and copy it into your own word or excel documents.

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
1008247	NATURAL AREA	Bear Creek Wetland (ES6)					17PK0113	
1008247	SPECIES	Houghton's Flatsedge	Cyperus houghtonii				17PK0113	
1008247	SPECIES	Snapping Turtle	Chelydra serpentina	SC		SC	17PK0113	



Species list in taxonomic order for square 17PK01

All species

Number of rows of data displayed below: 23.

Species #	Common Name	# of Records	Earliest Yr _____	Latest Yr
1	Blanding's Turtle	4	2016	2018
3	Midland Painted Turtle	23	1925	2019
4	Northern Map Turtle	1	2016	2016
5	Red-eared Slider	5	1992	2013
6	Snapping Turtle	23	1965	2019
12	Eastern Gartersnake	9	1926	2018
18	Milksnake	3	2009	2010
19	Northern Watersnake	1	2016	2016
21	Red-bellied Snake	4	1988	2018
23	Northern Ring-necked Snake	1	2017	2017
25	American Bullfrog	3	1979	2017
27	Gray Treefrog	19	1989	2018
28	Green Frog	25	1989	2018
29	Mink Frog	1	2016	2016
30	Northern Leopard Frog	9	1979	2016
31	Pickereel Frog	1	1929	1929
32	Spring Peeper	30	1990	2019
33	Western Chorus Frog	2	2007	2012
34	Wood Frog	5	2010	2018
35	American Toad	25	1969	2018
41	Eastern Red-backed Salamander	3	1929	2018
48	Spotted Salamander	1	1926	1926
49	Five-lined Skink	2	2016	2016

[TEA home page](#) | [Main atlas page](#)

Species list for square 17PK01 (number of entries returned: 110)

Region	Square	Species	Breeding Evidence			Point Counts			
						#PC	%PC	Abun	#Sq
13	17PK01	Canada Goose	NY	CONF	1	Jeffsurvey Howard			
13	17PK01	Wood Duck	FY	CONF	1	Dave Fewster			
13	17PK01	American Black Duck	FY	CONF	1				
13	17PK01	Mallard	NY	CONF	1	Jeffsurvey Howard	2	9.09	0.4091
13	17PK01	Blue-winged Teal	H	POSS	1	Dave Fewster			
13	17PK01	Common Merganser	P	PROB	1				
13	17PK01	Ruffed Grouse	H	POSS	1	Dave Fewster			
13	17PK01	Wild Turkey	FY	CONF	1	Dave Fewster			
13	17PK01	American Bittern	H	POSS	1	Dave Fewster			
13	17PK01	Great Blue Heron	NY	CONF	1	Liz M. MacDonald	1	4.55	0.0455
13	17PK01	Green Heron	FY	CONF	1		1	4.55	0.0909
13	17PK01	Turkey Vulture	P	PROB	1	Christopher Mr. Christopher G. Harris Harris			
13	17PK01	Osprey	FY	CONF	1	Liz M. MacDonald			
13	17PK01	Cooper's Hawk	NY	CONF	1	Jeffsurvey Howard			
13	17PK01	Broad-winged Hawk	H	POSS	1				
13	17PK01	Red-tailed Hawk	H	POSS	1				
13	17PK01	Merlin	T	PROB	1				
13	17PK01	Peregrine Falcon	T	PROB	1	Ted Armstrong			
13	17PK01	Virginia Rail	A	PROB	1	Dave Fewster			
13	17PK01	Sora	T	PROB	1				
13	17PK01	Killdeer	D	PROB	1	Kenneth F Abraham	2	9.09	0.1818
13	17PK01	Rock Pigeon	AE	CONF	1		2	9.09	0.4091
13	17PK01	Spotted Sandpiper	FY	CONF	1				
13	17PK01	Common Snipe	D	PROB	1				
13	17PK01	American Woodcock	S	POSS	1				
13	17PK01	Ring-billed Gull	H	POSS	1	Christopher Mr. Christopher G. Harris Harris	9	40.91	2.5909
13	17PK01	Mourning Dove	NY	CONF	1		4	18.18	0.3182
13	17PK01	Black-billed Cuckoo	H	POSS	1				
13	17PK01	Eastern Screech-Owl	FY	CONF	1				
13	17PK01	Great Horned Owl	S	POSS	1				
13	17PK01	Barred Owl	H	POSS	1				
13	17PK01	Common Nighthawk	T	PROB	1				
13	17PK01	Whip-poor-will	T	PROB	1				
13	17PK01	Chimney Swift	T	PROB	1	Liz M. MacDonald	2	9.09	0.1818
13	17PK01	Ruby-throated Hummingbird	T	PROB	1				
13	17PK01	Belted Kingfisher	AE	CONF	1	Dave Fewster			
13	17PK01	Red-headed Woodpecker	CF	CONF	1				
13	17PK01	Yellow-bellied Sapsucker	FY	CONF	1	Christopher Mr. Christopher G. Harris Harris	1	4.55	0.0455
13	17PK01	Downy Woodpecker	FY	CONF	1	Dave Fewster	3	13.64	0.1818
13	17PK01	Hairy Woodpecker	FY	CONF	1				
13	17PK01	Northern Flicker	T	PROB	1	Liz M. MacDonald	4	18.18	0.1818
13	17PK01	Pileated Woodpecker	S	POSS	1				
13	17PK01	Eastern Wood-Pewee	T	PROB	1	Dave Fewster	3	13.64	0.1818
13	17PK01	Alder Flycatcher	T	PROB	1	Dave Fewster			
13	17PK01	Willow Flycatcher	T	PROB	1				
13	17PK01	Least Flycatcher	T	PROB	1				
13	17PK01	Eastern Phoebe	NY	CONF	1				
13	17PK01	Great Crested Flycatcher	T	PROB	1	Dave Fewster	2	9.09	0.1818
13	17PK01	Eastern Kingbird	NY	CONF	1		2	9.09	0.0909
13	17PK01	Blue-headed Vireo	S	POSS	1				
13	17PK01	Warbling Vireo	CF	CONF	1		3	13.64	0.1364
13	17PK01	Red-eyed Vireo	AE	CONF	1		9	40.91	1.0
13	17PK01	Blue Jay	CF	CONF	1		2	9.09	0.0909
13	17PK01	American Crow	CF	CONF	1		11	50.0	0.8182
13	17PK01	Common Raven	P	PROB	1				
13	17PK01	Horned Lark	D	PROB	1		1	4.55	0.0455
13	17PK01	Purple Martin	H	POSS	1				
13	17PK01	Tree Swallow	AE	CONF	1		1	4.55	0.0909
13	17PK01	Northern Rough-winged Swallow	H	POSS	1	Liz M. MacDonald			
13	17PK01	Bank Swallow	AE	CONF	1				
13	17PK01	Cliff Swallow	P	PROB	1	Liz M. MacDonald			
13	17PK01	Barn Swallow	FY	CONF	1	2 atlassers	3	13.64	0.3636
13	17PK01	Black-capped Chickadee	NY	CONF	1	Jeffsurvey Howard	12	54.55	1.0
13	17PK01	Red-breasted Nuthatch	P	PROB	1	Dave Fewster	1	4.55	0.0455
13	17PK01	White-breasted Nuthatch	NE	CONF	1		5	22.73	0.3182
13	17PK01	Brown Creeper	P	PROB	1		1	4.55	0.0455
13	17PK01	House Wren	CF	CONF	1	Christopher Mr. Christopher G. Harris Harris	3	13.64	0.1818
13	17PK01	Winter Wren	T	PROB	1				
13	17PK01	Veery	T	PROB	1	Dave Fewster	1	4.55	0.0455
13	17PK01	Wood Thrush	T	PROB	1				
13	17PK01	American Robin	CF	CONF	1	Dave Fewster	4	18.18	0.3636
13	17PK01	Gray Catbird	NY	CONF	1		2	9.09	0.0909
13	17PK01	Brown Thrasher	P	PROB	1				
13	17PK01	European Starling	NY	CONF	1		7	31.82	1.4545
13	17PK01	Cedar Waxwing	AE	CONF	1		4	18.18	0.3636
13	17PK01	Northern Parula	T	PROB	1	Dave Fewster			
13	17PK01	Yellow Warbler	CF	CONF	1		1	4.55	0.0455
13	17PK01	Chestnut-sided Warbler	T	PROB	1		1	4.55	0.0455
13	17PK01	Yellow-rumped Warbler	T	PROB	1	Dave Fewster			
13	17PK01	Black-throated Green Warbler	S	POSS	1				
13	17PK01	Blackburnian Warbler	S	POSS	1				
13	17PK01	Pine Warbler	NY	CONF	1	Jeffsurvey Howard	2	9.09	0.0909
13	17PK01	Black-and-white Warbler	T	PROB	1				
13	17PK01	American Redstart	AE	CONF	1	Liz M. MacDonald			
13	17PK01	Ovenbird	DD	CONF	1		2	9.09	0.0909
13	17PK01	Northern Waterthrush	T	PROB	1				
13	17PK01	Mourning Warbler	A	PROB	1				
13	17PK01	Common Yellowthroat	DD	CONF	1				
13	17PK01	Eastern Towhee	S	POSS	1				
13	17PK01	Chipping Sparrow	CF	CONF	1	Christopher Mr. Christopher G. Harris Harris	6	27.27	0.4091
13	17PK01	Field Sparrow	T	PROB	1				
13	17PK01	Vesper Sparrow	T	PROB	1	Dave Fewster	2	9.09	0.0909
13	17PK01	Savannah Sparrow	CF	CONF	1				
13	17PK01	Song Sparrow	CF	CONF	1	Dave Fewster	14	63.64	0.9545
13	17PK01	Swamp Sparrow	CF	CONF	1	Dave Fewster	1	4.55	0.1818
13	17PK01	White-throated Sparrow	FY	CONF	1				
13	17PK01	Scarlet Tanager	T	PROB	1				
13	17PK01	Northern Cardinal	NY	CONF	1	Jeffsurvey Howard	3	13.64	0.1818
13	17PK01	Rose-breasted Grosbeak	T	PROB	1		1	4.55	0.0455

13	17PK01	Indigo Bunting	A	PROB	1	Christopher Mr. Christopher G. Harris Harris	4	18.18	0.1818	1
13	17PK01	Bobolink	T	PROB	1					
13	17PK01	Red-winged Blackbird	CF	CONF	1	Dave Fewster	8	36.36	1.0455	1
13	17PK01	Eastern Meadowlark	T	PROB	1					
13	17PK01	Common Grackle	CF	CONF	1		6	27.27	0.5909	1
13	17PK01	Brown-headed Cowbird	NE	CONF	1		2	9.09	0.0909	1
13	17PK01	Baltimore Oriole	NY	CONF	1		2	9.09	0.1364	1
13	17PK01	Purple Finch	S	POSS	1	Christopher Mr. Christopher G. Harris Harris	1	4.55	0.0455	1
13	17PK01	House Finch	AE	CONF	1		2	9.09	0.0909	1
13	17PK01	American Goldfinch	NY	CONF	1	2 atlasers	14	63.64	1.3182	1
13	17PK01	House Sparrow	FY	CONF	1	Liz M. MacDonald	6	27.27	0.7273	1

New data summaryDownload results

APPENDIX C

Significant Wildlife Habitat Assessment

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
518-524 Tiffin Street, Barrie

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

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

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

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

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

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

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

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

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

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
518-524 Tiffin Street, Barrie

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

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RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Other Rare Vegetation Communities Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M The OMNRF/NHIC will have up to date listing for rare vegetation communities. <u>Information Sources</u> - Natural Heritage Information Center (NHIC) has location information available on their website - OMNRF Districts - Field Naturalist clubs - Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. - Area of the ELC Vegetation Type polygon is the SWH. - SWHMiST Index #37 provides development effects and mitigation measures.	No suitable habitat present
SPECIALIZED HABITAT FOR WILDLIFE					
Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Nesting Area Rationale: Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to PSW	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. - Upland areas should be at least 120 m wide so that predators such as raccoons, 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, or; - Presence of 10 or more nesting pairs for listed species including Mallards. - Any active nesting site of an American Black Duck is considered significant. - Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". - A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. - SWHMiST Index #25 provides development effects and mitigation measures.	No suitable habitat present

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

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RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Woodland Raptor Nesting Habitat <u>Rationale:</u> Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper’s Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. Interior habitat determined with a 200m buffer - Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. - In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <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. - Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). - Barred Owl – A 200m radius around the nest is the SWH. - Broad-winged Hawk and Coopers Hawk– A 100m radius around the nest is the SWH. - Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. - Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial. (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. - SWHMiST Index #27 provides development effects and mitigation measures.	No stick nests observed on or adjacent to the Site in 2021. Additional survey will take place in 2022.
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) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	- Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. - For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. - Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <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 Center (NHIC) - Field Naturalist clubs	Studies confirm: - Presence of 5 or more nesting Midland Painted Turtles. - One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. - The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. - Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. - Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. - SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	No suitable habitat present.

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RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Seeps and Springs <u>Rationale:</u> Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. - Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species. <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 seeps/springs should be considered SWH. - The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. - SWHMiST Index #30 provides development effects and mitigation measures.	No seeps/springs observed.
Amphibian Breeding Habitat (Woodland). <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.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM Breeding pools within the woodland or the shortest from forest habitat are more significant because they are more likely to be used due to reduced	- Presence of a wetland, pond or woodland pool (including vernal pools) >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. <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 District - OMNRF wetland evaluations - Field Naturalist clubs - Canadian Wildlife Service - Amphibian Road Call Survey - Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm; - Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. - A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. - The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. - SWHMiST Index #14 provides development effects and mitigation measures.	Potential – SWD6-1 present to the northwest of the subject properties on adjacent lands. No signs of permanent standing water visible in fall 2021. To be confirmed in spring 2022.

**Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
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RARE VEGETATION COMMUNITIES					
Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Amphibian Breeding Habitat (Wetlands) <u>Rationale:</u> Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	- Wetlands>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 will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. - If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. - SWHMiST Index #15 provides development effects and mitigation measures.	Small wetland abutting west side of subject properties is < 500 m2, which does not meet size requirement.
Woodland Area-Sensitive Bird Breeding Habitat <u>Rationale:</u> Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Special Concern: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat. <u>Information Sources</u> - Local bird clubs. - Canadian Wildlife Service (CWS) for the location of forest bird monitoring. - Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. - Reports and other information available from Conservation Authorities.	Studies confirm: - Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. - Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. - Conduct field investigations in spring and early summer when birds are singing and defending their territories. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #34 provides development effects and mitigation measures.	FOD/SWD woodland present to the northwest and north of the subject properties, however, interior habitat measured from the edge of the woodland limit finds no interior forest habitat on the property.

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

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HABITAT FOR SPECIES OF CONSERVATION CONCERN (NOT INCLUDING ENDANGERED OR THREATENED SPECIES)					
Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Terrestrial Crayfish <u>Rationale:</u> Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (<i>Fallicambarus fodiens</i>) Devil Crayfish or Meadow Crayfish; (<i>Cambarus Diogenes</i>)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. - Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. - Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <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 moist terrestrial sites. - Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. - Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult. - SWHMiST Index #36 provides development effects and mitigation measures.	No suitable habitat present
Special Concern and Rare Wildlife Species <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.	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 <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 <i>e.g.</i> specific nesting habitat or foraging habitat. - SWHMiST Index #37 provides development effects and mitigation measures.	Potential habitat present. Records for the Eastern Wood-Pewee and Wood Thrush exis for the study area and habitat may be present to the north/northwest of the subject properties. To be confirmed in 2022.

Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E Assessment
518-524 Tiffin Street, Barrie

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

Significant Wildlife Habitat Criteria Schedule for EcoRegion 6E Assessment
518-524 Tiffin Street, Barrie

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

APPENDIX E

CV for Kyle Fleming



Kyle Fleming, BSc. (Wildlife)

Senior Ecologist

Qualifications

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

Professional Experience

MAY 2019 - PRESENT

Senior Ecologist/Owner / Roots Environmental, Barrie, ON

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

MAY 2004- MAY 2019

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

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

APRIL – AUGUST 2003

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

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

NOVEMBER 2002 – JANUARY 2003

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

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

APRIL – AUGUST 2002

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

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

MAY – AUGUST 2001

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

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

Education

2002

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

1998

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

Certifications/Courses

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

Project Experience:

Infrastructure

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

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

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

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

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

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

Region of Durham – Gamebridge Bridge Post Construction Monitoring

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

County of Brant – Governor's Road Environmental Assessment

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

City of Oshawa – Windfields Drive West Connection Environmental Assessment

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

Infrastructure cont'd.

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

Central Ontario – 407 ETR Interchanges

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

City of Oshawa – Conlin Road Detailed Design

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

Region of Durham – Zephyr Road Environmental Impact Study

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

Aggregates

Natural Environment Report (NER) Level I & II (Township of Minden Hills)

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

Natural Heritage Evaluation (Oak Ridges Moraine)

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

Natural Environment Report Level I & II (Township of McNab-Braeside)

NER completed in support of major site plan amendment for expansion of quarry under ARA. Significant Wildlife Habitat was identified which included provincially rare plant species, amphibian woodland ponds, area sensitive bird habitat and deer wintering habitat.

Aggregates cont'd.

Natural Environment Report Level I & II (Township of Galway-Harvey- Cavendish)

NER completed in support of new aggregate pit within Crown Land permit. Significant Wildlife Habitat (Great Blue Heron nesting site) and significant wetlands were identified, and mitigation measures recommended for their protection.

Natural Environment Report Level I & II (Township of Garafraxa)

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

Butternut Assessment (Township of Oro Medonte)

An assessment was completed to Ministry of Natural Resource' standards for endangered butternut trees found within an existing pit.

Natural Environment Report Level I & II (Township of West Grey)

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

Species at Risk Assessment (All of Ontario)

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

Natural Environment Report Level I & II (Township of Galway-Harvey- Cavendish)

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

Natural Environment Report Level I & II (Municipality of Grey Highlands)

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

Aggregates cont'd.

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

Natural Environment Report Level I & II (Township of Uxbridge)

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

Species at Risk Registration and Monitoring (Township of Springwater)

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

Urban and Rural Development

Biological Monitoring Plan and Erosion/Sediment Control Inspections (City of Brantford)

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

Environmental Impact Study (EIS)- Rural Severances (Township of Oro- Medonte)

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

Rare Species Surveys- Southshore Woods (Town of Innisfil)

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

Scoped EIS and Wetland Delineation (Township of Tay)

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

Urban and Rural Development cont'd.

Natural Heritage Evaluation- (Town of Uxbridge and the Oak Ridges Moraine)

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

Preliminary Species at Risk Assessment- Rural Development (District of Muskoka)

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

Environmental Evaluation- Shoreline Residential Severances (Township of Georgian Bay)

An evaluation was completed in support of an application to sever two shoreline residential lots. Field investigations and analysis identified appropriate setbacks and mitigation measures for the protection of fish habitat and water quality.

Tree Inventory and Butternut Assessment (Town of Innisfil)

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

Natural Heritage Development Review- Big Chute (Crown Lands)

Field investigations and a review of background documentation was completed to determine the opportunities and constraints for construction of a cottage road through Crown Lands. Recommendations for placement of the road were made to avoid impacts to sensitive natural features.

Existing Conditions Report- Alcona North Secondary Plan (Town of Innisfil)

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

Environmental Impact Study- Commercial Redevelopment (Township of Springwater)

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