

Environmental Impact Study - 505-533 Yonge Street, Barrie, Ontario



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Prepared for:

Renaissance Retirement Barrie Trust

Cambium Reference: 9574-003

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1.0 Introduction

Cambium Inc. (Cambium) was retained by Renaissance Retirement Barrie Trust to conduct an Environmental Impact Study - 505-533 Yonge Street, Barrie, Ontario (Figure 1). The proposed development includes a Zoning By-Law Amendment to allow for the development of four buildings with a mix of commercial and residential use. Based on the proposed development, four properties including 505, 511, 515, and 533 Yonge Street will be considered together as the Site for this report.

The Environmental Impact Study (the Study) is required to address potential negative impacts to natural heritage features identified during the preliminary development review process, as required by the Provincial Policy Statement, 2020 (PPS), the Lake Simcoe Protection Plan, 2009 (LSPP), and the City of Barrie Official Plan. The Site is located inside the Barrie Settlement Area. The Site contains or is adjacent to (within 120 m) the following mapped natural heritage and/or hydrologic features: Lover's Creek, Lover's Creek Swamp Provincially Significant Wetland (PSW; adjacent lands to the south), and Level 2 Natural Heritage Resource on Schedule H of the City of Barrie Official Plan. Level 2 Natural Heritage Resource includes, but does not differentiate between, significant valleylands, life science areas of natural and scientific interest, significant wildlife habitat, watercourses, and woodlands (greater than 4 ha but less than 10 ha). The Site is within Ecoregion 6E of Ontario (Crins, Gray, Uhlig, & Wester, 2009).

The Site is within the jurisdiction of the Lake Simcoe Region Conservation Authority (LSRCA) and their regulated area does overlap the Site due to the presence of a mapped watercourse. As the Site contains wetlands and/or watercourses, the Study will consider regulations on development as imposed by the local Conservation Authority's Regulation under the *Conservation Authorities Act, 1990*.

The *Endangered Species Act, 2007* (ESA) protects endangered or threatened species and their habitats from harm or destruction. Habitat of endangered and threatened species is protected under provincial natural heritage policy; however, it is also the landowner's

responsibility to ensure that no harm to these species occurs on their property. This Study includes a habitat-based screening for species of conservation concern to determine if the Site has suitable habitat for any provincial or federal species at risk (SAR).

In order to address the Study requirements of the approval authorities, Cambium has conducted this Study to provide an evaluation of reasonably anticipated ecological impacts, positive or negative, that may arise as a result of this proposed development to guide the decision-making process.

1.1 Terms of Reference

The Terms of Reference (TOR) for the Study was reviewed and approved by the LSRCA through correspondence with Kate Lillie, Natural Heritage Ecologist, on July 19, 2021. Relevant correspondence and documentation are provided in Appendix A.

1.2 Proposed Development and Conceptual Site Plan

The Site is comprised of four separate parcels, collectively approximately 2.7 ha, which are being considered together under this Study. The southern parcel is a narrow rectangle with the narrower end fronting on Yonge Street and includes a residential dwelling and adjacent building. The middle parcel is a similar rectangular parcel with the narrower end fronting on Yonge Street and includes a residential dwelling and associated buildings. The northern parcel is a wide L-shape which comprises most of the Site and fronts on Yonge Street. To the south, this parcel contains an existing building and two attached parking lots, while the rest remains undeveloped with Lover's Creek flowing along the northeast boundary of the property. Adjacent land uses are a mix of commercial and residential.

The proposed development includes four buildings with a mix of commercial and residential use, parking areas (both surface and underground), and amenity space. Buildings range in height from 8 to 12 storeys, collectively containing approximately 400 residential units, with ground floor commercial in one building that fronts on Yonge Street. A Conceptual Site Plan is provided in Appendix B.

2.0 Applicable Natural Heritage Policy and Regulation

2.1 Provincial Policy Statement, 2020

Section 2.1 of the Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing, 2020) protects the form and function of natural heritage features as defined by the PPS. Natural heritage features included in the PPS are provincially significant wetlands (PSW), significant coastal wetlands, significant woodlands, significant valleylands, significant wildlife habitat (SWH), significant areas of natural and scientific interest (ANSI), fish habitat, and the habitat of endangered and threatened species. Given their significance, development is prohibited within PSWs in Ecoregions 5E, 6E, and 7E and within significant coastal wetlands. Development in fish habitat and the habitat of endangered and threatened species shall only be permitted in accordance with provincial and federal requirements. Development within other natural heritage features and on lands adjacent to all natural heritage features are permitted only if demonstrated that there will be no negative impacts on the feature or their ecological function. Development includes the creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the *Planning Act*.

Section 2.2 of the PPS protects the quality and quantity of water, including the form a hydrologic function of sensitive surface water features and sensitive ground water features. Focus is given to maintaining hydrologic linkages and functions at the watershed scale to minimize potential negative impacts, including cross-jurisdictional and cross-watershed impacts of development. Mitigative measures and/or alternative development approaches should be considered for development near water features.

2.2 Lake Simcoe Protection Plan, 2009

In response to a decline in the ecological integrity of Lake Simcoe, the Lake Simcoe Protection Act was passed in 2008 and the Lake Simcoe Protection Plan (LSPP) was established in 2009 (Ministry of Environment and Climate Change, 2016). The LSPP applies to the Lake Simcoe watershed and focuses on issues such as aquatic life, water quality and quantity, ecosystem health at the watershed scale, invasive species, climate change, and recreational activities.

Pursuant to the LSPP, development and site alteration proposed within existing Settlement Areas are subject to Policies 6.32-DP, 6.33-DP, and 6.34-DP:

6.32-DP Policies 6.32 - 6.34 apply to existing settlement areas and areas of Lake Simcoe adjacent to these lands, including the littoral zone, and these areas are not subject to policies 6.1 – 6.3, 6.5, 6.11 and policies 6.20 - 6.29.

6.33-DP An application for development or site alteration shall, where applicable:

- a. increase or improve fish habitat in streams, lakes and wetlands, and any adjacent riparian areas;
- b. include landscaping and habitat restoration that increase the ability of native plants and animals to use valleylands or riparian areas as wildlife habitat and movement corridors;
- c. seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into receiving streams, lakes and wetlands; and,
- d. establish or increase the extent and width of a vegetation protection zone adjacent to Lake Simcoe to a minimum of 30 metres where feasible.

6.34-DP Where, through an application for development or site alteration, a buffer is required to be established as a result of the application of the PPS, the buffer shall be composed of and maintained as natural self-sustaining vegetation.

2.3 Official Plan and Zoning By-Law

The Site is designated 'Residential' and 'Environmental Protection' on Schedule A Land Use of the City of Barrie Official Plan. A portion of the Site is also identified as a Level 2 Natural Heritage Resource on Schedule H, which includes, but does not differentiate between, significant valleylands, life science areas of natural and scientific interest, significant wildlife habitat, watercourses, and woodlands (greater than 4 ha but less than 10 ha).

The existing zoning of the Site includes several specific residential zones, allowing for multiple dwelling and single detached dwelling. A Zoning By-law Amendment will be required for the proposed development.

2.4 Conservation Authority Regulation

“Conservation Authorities are local watershed management agencies that deliver services and programs to protect and manage impacts on water and other natural resources in partnership with all levels of government, landowners and many other organizations” (Conservation Ontario, 2021). Conservation Authorities each have their own Ontario Regulation under the *Conservation Authorities Act, 1990*. In general, they regulate development within and adjacent to river or stream valleys, Great Lakes and inland lakes shorelines, watercourses, hazardous lands (flood, erosion, unstable soils) and wetlands.

Lake Simcoe Region Conservation Authority regulates these features under Ontario Regulation 179/06: *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*.

2.5 Endangered Species Act, 2007

Species listed as endangered or threatened on the Species at Risk in Ontario (SARO) list are protected under the provincial *Endangered Species Act, 2007* (ESA) (Government of Ontario, 2007). Section 9(1) of the ESA prohibits a person from killing, harming, harassing, capturing or taking a member of a species listed as endangered, threatened, or extirpated. Section 10(1) of the ESA prohibits the damage or destruction of habitat of species listed as endangered or threatened. Protection of special concern species is provided through designation of their habitat as significant wildlife habitat, a provincially protected natural heritage feature.

2.6 Species at Risk Act

The federal *Species at Risk Act* (SARA) was adopted in 2002 to prevent endangered or threatened species from becoming extinct or extirpated, to help in the recovery of endangered, threatened and extirpated species, and to manage species of special concern to help prevent

them from becoming endangered or threatened. Habitat which is deemed necessary for the survival/recovery of a listed wildlife species, referred to as Critical Habitat, is protected under Section 56 of the SARA. The SARA applies to all federal lands in Canada; however, at-risk aquatic and migratory bird species located on private property in Ontario also receive protection under the Act.

2.7 Fisheries Act

Works within and adjacent to lakes, watercourses, and other bodies of water containing fish have the potential to impact fish and/or fish habitat. As a result of amendments to the federal Fisheries Act in 2019, projects near water that could potentially impact fish or fish habitat are may require Fisheries and Oceans Canada (DFO) review. The primary purpose of the review is to determine whether harmful alteration, disruption, or destruction (HADD) of fish habitat, as defined by the Act, can be avoided. The DFO Fisheries Protection Program provides a Decision Framework and guidance material applicable to these reviews (available on-line at www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html). If it is determined that “HADD” may be unavoidable, the project should be submitted to DFO for review and determination of project approach and conditions of approval.

3.0 Technical Approach and Data Collection Methods

3.1 Background Information Review

Existing background information pertaining to the Site and surrounding landscape was compiled and reviewed, as part of a comprehensive desktop exercise, to better understand local biophysical conditions. In southern Ontario, readily available data includes orthoimagery, topographic base mapping, and geological records. Natural environment and land use schedules prepared in support of Official Plans and Zoning By-Laws were reviewed to acquire municipal data. Natural area records and species occurrences were obtained from digital resources and reference materials. The comprehensive desktop review for this Site included the following resources:

- Natural Heritage Areas: Make-a-map (Ministry of Natural Resources and Forestry, 2018); Accessed March 25, 2021
- Aquatic Species at Risk Maps - Ontario (Fisheries and Oceans Canada, 2018); Accessed August 10, 2021
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature, 2018); Accessed August 09, 2021
- Ontario Breeding Birds Atlas (OBBA) (2001-2005) (Bird Studies Canada, 2005); Accessed August 09, 2021
- Lake Simcoe Region Conservation Authority– Barrie Creeks, Lovers Creek, and Hewitt's Creek Subwatershed Plan (Lake Simcoe Region Conservation Authority, 2012)
- Lake Simcoe Region Conservation Authority regulated area mapping
- City of Barrie Official Plan
- Geotechnical Investigation Report - 505 Yonge Street, Barrie, Ontario (Cambium Inc., 2021)

Figure 2 shows the mapped natural heritage features present in the general area of the Site.

3.1.1 Ministry Consultation

Depending on the natural feature of the Site, ministry consultation may include the Ministry of Northern Development, Mines, Natural Resources, and Forestry (MNDMRF/MNRF) and/or the Ministry of Environment, Conservation, and Parks (MECP), as applicable.

In early 2019, the Government of Ontario made changes to the regulating authority on matters related to SAR in the province. The Ministry of Environment, Conservation and Parks (MECP) is now responsible for administering the ESA and providing direction on potential compliance issues. MECP has prepared a guidance document titled *Client's Guide to Preliminary Screening for Species at Risk* (Ministry of the Environment, Conservation and Parks, 2019). This document aims to “help clients better understand their obligation to gather information and complete a preliminary screening for SAR before contacting the Ministry”. This document was used to guide the SAR habitat-based screening for the Study.

3.2 Field Investigations

Information gathered through the background information review was used to guide the development of the fieldwork program. The purpose of the site visit(s) was to verify information acquired through existing documentation and to gather additional site-specific information. The following sections provide the methods that were used to gather site-specific information.

3.2.1 Ecological Land Classification and Vegetation Inventory

The Ecological Land Classification (ELC) System for Southern Ontario (Lee, et al., 1998) was used to classify vegetation communities on the Site. Definitions of vegetation types are derived from the ELC for Southern Ontario First Approximation Field Guide (Lee, et al., 1998) and the revised 2008 tables. ELC units were initially delineated and classified by orthoimagery interpretation. Field investigations served to confirm the type and extent of communities on the Site through vegetation inventory and soil assessment with a hand auger. Where vegetation communities extend off the Site, classification is done through observation from property boundaries and publicly accessible lands.

3.2.2 Wetland Boundary Delineation

In Ontario, wetlands are mapped and evaluated under the Ontario Wetland Evaluation System (OWES). Mapped evaluated wetlands have undergone extensive study and been assessed based on their form and function under four categories: Biological, Social, Hydrological, and Special Features (Ministry of Natural Resources, 2014). Evaluated wetlands that score high enough are deemed Provincially Significant Wetlands (PSW). Evaluated wetlands that did not score high enough to be a PSW are called Locally Significant Wetlands (LSW). The province also maps unevaluated wetlands. These mapped wetlands are approximate; as such, they require field verification in order to confirm their presence and determine their boundaries.

The subject wetland was delineated following provincially approved methods outlined in the Ontario Wetland Evaluation System: Southern Manual, 3rd Ed. (Ministry of Natural Resources, 2014). Fieldwork was carried out by provincially certified Cambium staff.

Wetland boundaries were initially delineated and classified by orthoimagery interpretation. The presence/absence of wetlands on the Site was confirmed through field investigations during the growing season (late May through October). Wetland boundaries were determined using the 50% wetland vegetation rule. Where vegetation-based delineation was inconclusive, soil assessment with a hand auger was used to confirm wetland boundaries. Wetland boundaries on the Site were marked with a hand-held GPS unit in the field.

3.2.3 Surface Water and Aquatic Habitat Survey

A roaming visual survey was completed to identify and map all aquatic features on the Site, including waterbodies, watercourses (permanent and intermittent), seeps, springs, and overland drainage paths. Aerial photography and topographic base mapping was reviewed to identify additional aquatic features on adjacent lands that weren't directly accessible. On-site features were characterized based on in-stream and riparian cover, channel structure/morphology, substrates, hydrologic measurements, and indicators of instability, thermal regime, and permanence of flow, where applicable. Definitions and technical criteria referenced in the Ontario Stream Assessment Protocol (OSAP; (Ministry of Natural Resources and Forestry, 2017)) were applied to wadeable streams. In addition, all identified aquatic

features were assessed to determine their function as habitat for fish. Fish presence, specialized habitat features, and potential barriers to fish movement were documented. All feature crossings including bridges, culverts, and bed-level crossings, were also noted and georeferenced in the field. Finally, any evidence of erosion or sedimentation was noted, and up-gradient areas were investigated to identify potential sources.

3.2.4 Breeding Bird Surveys

Two (2) breeding bird surveys 7-10 days apart were carried out during the peak breeding season between May 24 and July 10. Point counts were complete using components of the Ontario Breeding Bird Atlas (OBBA) Guide for Participants (Ontario Breeding Bird Atlas, 2001) and the Forest Bird Monitoring Program (Cadman, Dewar, & Welsh, 1998) based on habitat characteristics. As outlined in the OBBA protocol, point counts are to be done between dawn and five (5) hours after dawn, when wind speed is low (<19 km/h) and in the absence of rain or thick fog. All species observations (visual and auditory) were recorded during a five (5) minute period. Each species observed was classified and assigned a code based on the highest level of breeding evidence, as defined by the protocol: Confirmed, Probable, Possible or Observed.

3.2.5 Bat Maternity Roost Habitat Surveys

Bats present in Ontario typically require a snag or cavity tree for maternity roosting habitat. A snag or cavity tree is defined as a standing live or dead tree ≥ 25 cm diameter at breast height (DBH), with cracks, crevices, hollows, cavities and/or loose or naturally exfoliating bark appropriate for bat roosting. High quality or significant wildlife habitat (SWH) is defined as woodlands with greater than 10 roost trees per hectare. To determine if suitable habitat for bats existed on/or adjacent to the Site, Cambium staff conducted a bat maternity roost survey using the methods detailed in the *Bat and Bat Habitats: Guidelines for Wind Power Projects* (Ontario Ministry of Natural Resources, 2011). Due to the relatively small size of the woodland on the Site, the entire site was searched for cavity trees ≥ 25 cm DBH that exhibited potential roost habitat.



3.2.6 Habitat-Based Wildlife Surveys

Given the scale of the proposed development, a habitat-based approach was used to assess potential impacts to wildlife, consistent with standard practice. General habitat information gathered through the field investigations was used to assess the connectivity of the Site with the surrounding landscape and evaluate the ecological significance of the local area. Cambium staff actively searched for features that may provide specialized habitat for wildlife. These searches included inspecting tree cavities, overturning logs, rocks and debris, and scanning for scat, browse, sheds, fur, etc. Any evidence of breeding, forage, shelter, or nesting was noted. Species and habitat observations were documented and photographed.

4.0 Characterization of Natural Features and Functions

Background information and field investigation data is provided in the following sections.

Based on the background and field data, an assessment of significance has been completed to identify protected natural heritage features on and/or adjacent to the Site.

The following field investigations were carried out on the Site and are summarized in Table 1. Representative Site photos are included in Appendix C and locations of specific surveys are shown on **Figure 3**.

Table 1 Summary of Field Investigations

Date	Time On Site	Weather	Observer	Activities
2021-06-18	1200-1400	21-26°C, cloudy Wind: 4	K. McKitterick	Vascular Plant Survey/Ecological Land Classification Bat Roost Survey
2021-06-21	0700-0800	20-25°C, overcast Wind: 3	M. Soden	Breeding Bird Survey #1
2021-06-24	1315-1430	27°C, sunny Wind: 1-2	D. Langlois M. Latter	Aquatic Habitat Survey
2021-06-28	0700-0800	21-25°C, sunny Wind: 3	M. Soden	Breeding Bird Survey #2
2021-07-28	1100-1300	26°C, sunny Wind: 2	K. McKitterick	Vascular Plant Survey/Ecological Land Classification Bat Roost Survey
2021-09-02	1230-330	16°C, clear	K. McKitterick	Woodland Staking with LSRCA

Notes:

Wind speed is reported as a Beaufort Wind Scale value (0 = 0-2 kph, 1 = 3-5 kph, 2 = 6-11 kph, 3 = 12-19 kph, 4 = 20-30 kph, 5 = 31-39 kph, 6 = 40-50 kph)

4.1 Landscape Position and Topography

The Site is within the Mixedwood Plains Ecozone: Lake Simcoe Rideau Ecoregion 6E, which extends southward from a line connecting Lake Huron in the west to the Ottawa River in the east, including Ottawa, Kingston, Peterborough, Barrie, Tobermory, Kitchener, and Toronto. This ecoregion is characterized by a mixed geology that includes both shallow soil areas such as alvar and bedrock plains, as well as deep soil areas such as the Oak Ridges Moraine. It falls within the Great-Lakes St. Lawrence Forest Region, including deciduous and mixed forests; however, over 50% of the landscape in this Ecoregion is currently in use as agricultural land (Lee, et al., 1998).

The Site presents with a mixed topography, including a flat tableland on the southwest Site boundary adjacent to Yonge Street and a slope with valley feature along the northeast Site boundary. The slope and valley feature define the watercourse corridor that is present on and adjacent to the Site. The slope generally runs parallel to the southern Site boundary before curving to the north and following the eastern Site boundary. Detailed topographic mapping is provided under separate cover.

4.1.1 Significant Valleylands

Significant valleylands are natural heritage features that are afforded protection under provincial policy. Currently, according to the City of Barrie Official Plan, the planning authority has not explicitly defined or designated significant valleylands within their jurisdiction. Schedule H does identify significant valleylands as a Level 2 natural heritage resource; however, valleylands are not differentiated from other Level 2 features. In the absence of local criteria for evaluating valleylands, the Natural Heritage Reference Manual (NHRM) provides guidance (Ministry of Natural Resources, 2010). These criteria were reviewed with respect to the valley feature on and adjacent to the Site.

The slope at the Site is part of a larger valley feature that surrounds the Lovers Creek and the associated Lover's Creek Swamp PSW. The valleyland assessment was based on Site-specific observations and the criteria provided in the NHRM. Based on the assessment, the feature on the Site qualifies as Significant Valleyland:

- Conveys water for more than 2 months of the year as it contains a permanent watercourse;
- Well defined valley morphology with a width greater than 25 m in proximity to the Site;
- Defined top of slope has been identified at that Site;
- Riparian area presents largely with natural cover, with some presence of non-native species; and,
- Provides a linkage function between the upstream PSW and Lake Simcoe.

The boundary of this feature is the top of bank, as shown on **Figure 3**.

4.2 Vegetation Communities

A review of historical imagery available through the County of Simcoe GIS mapping indicates the Site was developed with residential dwellings prior to 1978 and with commercial development between 1978 and 1989. Vegetation on the Site in 1989 was limited to the riparian corridor and individual trees. Vegetation remained limited until the 2008 imagery, where trees/shrubs are seen expanding along the northern portion of the Site and expanding westward from the riparian corridor. By 2012, imagery shows vegetative connection between the riparian corridor and the northern portion of the Site. Current imagery, as shown on **Figure 3**, is generally consistent with 2012 imagery.

The vegetation communities on the Site are summarized in Table 2 and are mapped on Figure 3. A list of identified species and representative photos for each community are provided in Appendix D.

Table 2 Vegetation Communities

No.	ELC Code	Community Description	Community Type	S - Rank
1	FOD4	Dry – Fresh Upland Deciduous Forest (Cultural Woodland influence)	Terrestrial	N/A
2	MAM2	Mineral Meadow Marsh	Wetland	S5

3	FOM7-2	Dry – Fresh White Cedar – Hardwood Mixed Forest	Terrestrial	S5
	CVC	Cultural Developed Commercial	N/A	N/A

Community 1 (FOD4) presents with mixed species assemblage, with a greater number of native trees on the eastern side as compared with the northern/western side. This is consistent with the imagery review provided above that notes this area was largely unvegetated 30 years ago and was gradually colonized. The eastern side connects to a mixed forest that provide a seed bank for many native tree species; however, urbanized species including Manitoba Maple, Black Locust, and Black Walnut were abundant in the northern portion of the woodland. Many invasive species were also present, including Common Buckthorn, Japanese Knotweed, Tatarian Honeysuckle, and Siberian Elm. Due to this cultural influence, the community did not categorize well under ELC and it has been left at a high level of classification.

Two areas of wetland inclusion were identified along the interface of communities 1 and 3, along the slope. These are discussed further in Section 4.3.

A search for butternut (*Juglans cinerea*; provincially endangered) was completed as part of the vegetation survey; no butternut were identified.

4.2.1 Significant Woodlands

Significant woodlands are natural heritage features that are afforded protection under provincial policy. Currently, according to City of Barrie Official Plan, the planning authority has mapped significant woodlands but has not explicitly defined the criteria by which woodlands should be evaluated for significance. The riparian corridor on the Site has been mapped as a Level 2 Natural Heritage Resource on Schedule H. Based on this mapping and the field investigations, woodland significance would be at least partially based on the woodland being greater than 4 ha but less than 10 ha in size. Cambium understands that the LSRCA has also identified woodland size criteria within their report *Natural Heritage System and Restoration Strategy for the Lake Simcoe Watershed* (LSRCA, 2018); however, at this time the City of Barrie Official Plan does not reference these criteria. In the absence of local criteria for

evaluating woodlands, the Natural Heritage Reference Manual guidance on evaluating woodlands is provided below (Ministry of Natural Resources, 2010).

- Woodland Size Criteria

The woodland size criterion is based on the scarcity of woodlands within the planning region, with different thresholds for significance depending on the percent cover of woodlands. The woodland cover within the Lovers Creek watershed is 28% (LSRCA, 2018). Based on this criteria, woodlands 20 ha in size or larger should be considered significant. Through orthoimagery mapping, the woodland on the Site is part of a larger woodland feature that extends north in association with Lovers Creek, between Yonge Street and the railway line: approximately 8 ha in size.

While the woodland size does not meet the NHRM criteria, it is between 4 and 10 ha as noted on Schedule H of the City of Barrie Official Plan.

- Ecological Functions Criteria

There are five criteria included under the ecological functions, each with a set of recommendations: Woodland interior, Proximity to other woodlands or other habitats, Linkages, Water protection, Woodland diversity. A minimum size threshold is also applied to these criteria, which can range from 0.5-20 ha. The woodland on the Site would meet significance criteria for Proximity to other woodlands or other habitats, Linkages, and Water protection.

- Uncommon Characteristics Criteria

The recommendations of the uncommon characteristic's criterion were reviewed; no uncommon characteristics were found within the woodlands on the Site.

- Economic and Social Functional Values Criteria

The recommendations of the economic and social functional values criterion were reviewed; no economic or social values are known to exist for the woodlands on or adjacent to the Site.

The woodland on the Site is therefore considered Significant Woodland under this Study and the woodland boundary was staked in the field with LSRCA on September 2, 2021. The woodland boundary is shown on **Figure 3**.

4.3 Wetland Delineation

The Lover's Creek Swamp PSW is located adjacent to the Site, south of Yonge Street as shown on **Figure 2**. It is a wetland complex made up of four individual wetlands, covering approximately 1009.5 ha. This PSW is primarily comprised of a swamp community and is 40% palustrine and 60% riverine. It provides nesting habitat for colonial waterbirds such as the Great Blue Heron (*Ardea herodias*), winter cover for deer, and significant habitat for fish spawning and rearing including for Brook Trout (*Salvelinus fontinalis*).

Two areas with wetland vegetation were identified on the Site and are shown on **Figure 3**. These areas were located along the slope of the Site, within broader upland forest communities. They were both less than 0.5 ha in size (0.03 ha and 0.05 ha), which is the minimum size threshold for wetland units under the OWES. Based on their location and size, these wetland areas are considered inclusions in the upland communities and are not protected wetland areas. Their hydrologic role should still be considered in the impact assessment to ensure their contributions are appropriately maintained.

4.4 Surface Water and Drainage Features

Lovers Creek, which outlets to Lake Simcoe, runs along the northeastern boundary of the Site. The subject watercourse flows along the edge of the property (at the base of the forested slope), conveying flows northward. This feature exhibited a permanent flow regime, with flowing water observed during all field investigations. The representative photos are included in Appendix C.

The watercourse was considered all one reach for the purpose of the surface water feature assessment based on feature characteristics, as shown on **Figure 3**. Reach 1 extended along the entire northeast boundary of the Site, with a length of approximately 200 m. This feature is confined by valley slopes and channel morphology was characterized by a glide-riffle-pool

sequence. Channel dimensions and hydraulic measurements were collected at numerous points along the reach during the June field investigation, as summarized in Table 3.

Table 3 Aquatic Habitat Assessment Measurements

Bank-Full Width (m)	Bank-Full Depth (m)	Wetted Width (m)	Wetted Depth at Thawleg (m)	Hydraulic Head (mm)
10.7	0.93	8.1	0.24	5
11.8	0.81	5.3	0.31	10
15.0	0.91	6.2	0.28	10
10.3	0.98	5.6	0.57	2
8.1	0.68	7.7	0.38	0
Average				
11.2	0.86	6.6	0.36	5.4

In-channel substrates were dominated by large gravel and small cobble with sparse areas of bedrock and fines (sand and silt). Banks were documented as nearly vertical with several areas of undercutting, exposed soils and signs of erosion. The maximum water depth in pools varied from 0.36 m to 0.91 m. In-water cover was limited to sparse deadfall wood, flat rocks and undercut banks. No in-water vegetation was observed within this reach. Riparian vegetation (trees and grasses) on both the left- and right-hand banks provided low overhead cover.

Two drainage features were identified on the Site that appeared to convey surface water from the existing parking areas towards the watercourse. These are shown on **Figure 3**.

4.5 Fish and Fish Habitat

The subject watercourse, Lovers Creek, has a permanent flow regime on the Site. It exhibits a coldwater thermal regime and is listed as a feature supporting a Brook Trout (*Salvelinus fontinalis*) population. Appendix E includes a list of fish species known to occur in Lovers

Creek, based on the background information review, and species-specific life history information.

Based on characteristics described in Section 4.4, the watercourse on Site may provide suitable spawning and foraging habitat for coldwater species (i.e., Brook Trout).

Fish passage was considered throughout the reach. No culverts or barriers to fish passage were identified on the Site.

4.6 Wildlife Survey Results

4.6.1 Birds

OBBA breeding bird surveys were completed as a part of the current study. Bird species observed on or adjacent to the Site, breeding evidence, federal and provincial status and s-ranks are provided in Appendix F. A total of 4 had probable or confirmed breeding evidence (shaded cells in Appendix F). None of the species with probable or confirmed breeding evidence **on the Site** were rare or at risk.

4.6.2 Mammals

Due to the size of the Site, the entire woodland community was searched for suitable bat maternity roost trees. Two suitable trees were identified:

Tree 1 Eastern White Cedar (Community 3): 1 cavity 10-15 cm at 3-4 m height; 2 smaller cavities <5 cm at 4.5 and 5 m; all cavities on side facing away from creek (approx. East); difficult access to higher cavities with cedar foliage; lower cavity has good clearance for access; near water for foraging habitat.

Tree 2 Standing Dead Black Ash (Community 3): 1 cavity 15-20 cm at 5 m height; tree has peeling bark but may be too advanced in decay to provide roosting habitat; tree situated in small clearing in canopy created from loss of Ash tree with good access for roosting/nesting.

4.7 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) guidance documents produced by the MNRF were used as a guide to identify and confirm SWH on the Site (MNR, 2000). The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (Ministry of Natural Resources and Forestry, 2015) apply to the proposed works. Information gathered during the background review and field investigations were compared to SWH criteria to identify SWH at the Site. Based on our observations during field investigations and the ELC classifications described in Section 4.2, the Site does not meet the criteria for designation as SWH. Details on species of conservation concern and their protected habitat is provided under Section 4.8.

4.8 Species of Conservation Concern

A list of species of conservation concern, including species at risk, with potential to occur in the general vicinity of the Site has been compiled based on known species' ranges, habitat requirements, and review of background information sources (as listed in Section 3.1). In addition, the list has been augmented with direct field observations from the current study, as detailed in the previous sections. Cambium has employed a habitat-based screening, supplemented with targeted field surveys, when necessary, to identify suitable habitat for species located on or adjacent to the Site. A detailed habitat suitability analysis is provided in Appendix G and a discussion of the results is provided below.

No Critical Habitat for aquatic species at risk listed under SARA was identified in Lovers Creek on or adjacent to the Site.

4.8.1 Endangered and Threatened Species

Due to the presence of a watercourse, PSW on adjacent lands, and connectivity to Lake Simcoe, potential habitat for Blanding's Turtle exists on the property. While Cambium is not aware of any confirmed occurrences within 2 km of the Site, the watercourse provides a linkage feature to other suitable habitats and the species is known to occur in the general area of the Site. Blanding's Turtle resident and overwintering habitat is not present on the Site but

may exist in the Lovers Creek PSW adjacent to the Site; nesting habitat may exist on the upland areas of the Site with sun exposure and dry soils.

Two suitable bat maternity roost trees were identified on the Site; as such, a limited amount of potential habitat for bats is present: Tri-coloured Bat, Eastern Small-footed Myotis, and Little Brown Myotis. There is no hibernation habitat on the Site. The watercourse and riparian areas would provide foraging habitat for bats.

4.8.2 Special Concern Species

Due to the presence of a watercourse, PSW on adjacent lands, and connectivity to Lake Simcoe, habitat for the following special concern turtle species exists on the property:

- Midland Painted Turtle: resident and overwintering habitat is not present on the Site but may exist in the Lovers Creek PSW adjacent to the Site; nesting habitat may exist on the upland areas of the Site with sun exposure and dry soils.
- Snapping Turtle: resident habitat may be present within the watercourse on the Site within deeper pools; overwintering habitat is not present on the Site but may exist in the Lovers Creek PSW adjacent to the Site; nesting habitat may exist on the upland areas of the Site with sun exposure and dry soils.

Habitat for special concern species is protected through the designation of their habitat as SWH.

5.0 Impact Assessment and Mitigation Measures

The proposed development includes a Zoning By-Law Amendment to allow for the development of four buildings with a mix of commercial and residential use.

The following sections address potential impacts to protected features identified on and adjacent to the Site that may result from the proposed development and site alteration:

- Significant Valleylands
- Significant Woodlands
- Permanent Watercourse & Fish Habitat
- Significant Wildlife Habitat – Special Concern Species
- Habitat of Endangered and Threatened Species

No other natural heritage features protected by provincial or municipal policy were confirmed on or adjacent to the Site.

No other features that would provide “corridor” function, as specified in the City of Barrie Official Plan, were identified on the Site.

Mitigation measures and best management practices have been recommended to ensure that the integrity of the current existing natural features are protected and/or enhanced and furthermore that their functions are not negatively impacted during or following construction.

5.1 Significant Valleylands

The significant valleyland feature represents several other natural heritage and natural hazard features collectively: significant woodland, permanent watercourse, and erosion hazard. The potential impacts to the form and function of the woodland and watercourse are discussed under Sections 5.2 and 5.4, respectively. The erosion hazard is delineated through the Top of Bank, which also defines the limit of the significant valleyland. Provided the development is setback from the top of bank and does not pose additional impacts to erosion of the slope (as

determined by the slope stability study), no impacts to the valleyland feature are anticipated. The Top of Bank is shown on **Figure 4**.

5.2 Significant Woodlands

The woodland on the Site is between 4 and 10 ha as specified on Schedule H of the City of Barrie Official Plan (approximately 8 ha) and meets the NHRM criteria for significance under the Proximity to other woodlands or other habitats, Linkages, and Water protection criteria. The woodland boundary is shown on **Figure 4**. Due to the existing developed nature of the Site and the woodland boundary abutting the constructed areas, a development setback is not currently present on the Site. The proposed development of the Site should seek to improve the interface between the woodland and developed areas through an appropriate Landscaping Plan and implementation of an Edge Management Plan for the woodland. The Landscaping Plan should focus on native species and non-invasive horticultural species. This would provide a net benefit to the woodlands on the Site as compared with existing conditions.

The Proposed Development Area includes a portion of the significant woodland, primarily in the northern area of the Site, as shown on **Figure 4**. The encroachment into the significant woodland represents an area of 0.80 ha. This portion of the woodland is outside the valleyland feature and outside the development setback for the watercourse (as discussed under Section 5.4). The woodland is significant primarily due to its connectivity to the watercourse, fish habitat, riparian protection function, and as a linkage corridor between the upstream PSW and the downstream Lake Simcoe. These functions will be maintained on the Site through the protection of the valleyland and watercourse features and the development setback for the watercourse.

The proposed encroachment represents the portion of the woodland that is culturally influenced, as evidenced by the review of historical imagery, the presence of urbanized species including Manitoba Maple, Black Locust, and Black Walnut, and the presence of several invasive species. The portion of the woodland that is associated with Lovers Creek and its riparian cover would be retained and protected by the proposed development. The woodland removals will require an appropriate woodland compensation plan, as specified

through LSRCA's Ecological Offsetting Policy (July 2021). In general, the policy requires the following:

- Replacement of woodlands based on the areal extent at a ratio of 2:1;
- Replacement of woodland setback based on the areal extent at a ratio of 1:1; and
- Payment of an Ecosystem Services Value based on \$6,234/ha of removals.
- If the above items are not feasible, then Cash-in-Lieu Compensation can be provided.

The form of the retained woodland could be enhanced through a woodland compensation plan that includes management of invasive species within the retained woodland. This would limit the available seed bank for invasives on the Site and reduce the spread of these species into the retained natural and/or landscaped areas of the Site. There is approximately 1.04 ha of retained woodland within the Site. Invasive species management would be considered an alternate compensation project under the LSRCA's Ecological Offsetting Policy (July 2021) and should be discussed with them to determine how this offsetting would be calculated. The Ecological Offsetting Strategy would be developed as part of Site Plan Approval, subject to approval of the Zoning By-Law amendment.

Invasive species are becoming problematic throughout Ontario and can adversely impact our natural landscapes, including wetlands, woodlands, and watercourses. No vegetation dumping or yard waste disposal should occur within the wetlands or forested areas of the Site to maintain the natural state and avoid the introduction or spread of non-native or invasive species. Landscape Plans should focus on native or non-invasive species. Additional best management practices to reduce the spread of invasive species include:

1. Revegetate with species native to the local area.
2. Request fill and compost from reputable sources that are conscious of the potential for the spread of invasive species via these media.
3. Get to know the most common invasive species in the area.



4. Brush off or clean any shoes, boots and equipment that have encountered invasive species before returning to the property.
5. Immediately eradicate invasive species if they are observed on the property.
6. Do not compost invasive species; put them in plastic bags and dispose of them in the garbage.
7. Do not dispose of lawn or garden clippings in the forest or wetlands to avoid species introductions.

Noise is not expected to increase significantly because of the proposed residential development as it is consistent with the land use on the surrounding properties. Maintaining the wooded areas surrounding the watercourse will serve to buffer wildlife within the natural areas from any noise-related impacts.

Artificial lighting can have an impact on nocturnal movement of wildlife within natural areas. To minimize impacts to wildlife, it is recommended that outdoor lights be operated on timers, rather than by motion detection. Outdoor lighting associated with the development should be directed at the ground, rather than into the adjacent natural areas. Bulb wattage should be as low as practical while meeting the safety intent of the lighting.

Provided an appropriate woodland compensation plan is developed for the woodland removals, no negative impact to the feature's significance criteria for size, proximity, linkage, or water protection are anticipated.

5.3 Provincially Significant Wetlands

The PSW is located on adjacent lands and is separated from the Site by Yonge Street. Yonge Street is a four-lane road and would pose a barrier to wildlife movement between the Site and the PSW. The PSW is hydrologically connected to the Site through Lovers Creek; however, the Site is located downstream and thus hydrologic impacts from the proposed development are not anticipated. Lovers Creek provides a travel corridor between the Site and the PSW; this is an important ecological linkage within this urban environment. Provided the watercourse and its development setback are maintained as the existing natural vegetation, no impacts to this

linkage function are anticipated. A 30 m development setback on the PSW is shown on **Figure 4** for reference; however, as this setback is located on adjacent private property, it does not impact the Site's development.

5.4 Permanent Stream & Fish Habitat

Lovers Creek is located on and adjacent to the Site and represents a coldwater thermal regime with potential to support Brook Trout habitat. No direct impacts to the watercourse or fish habitat are proposed. Coldwater streams are sensitive to changes in temperature and sediment loading. To mitigate potential indirect impacts, a 30 m development setback is recommended for the watercourse and is shown on **Figure 4**. The 30 m setback is considered sufficient to protect the existing form and function of the watercourse provided the area be maintained as existing forest cover and be allowed to naturally self-sustain (i.e., a buffer area where no vegetation removals or grading is allowed).

The Hydrogeological Assessment Report (Cambium, 2021) and the Functional Servicing Report (Tatham, 2021) prepared for the Site should specifically address potential stormwater-related impacts to water quality and quantity of the watercourse, through quality control measures and a feature-based water balance study. Cambium understands that SWM outflows from the Site will be directed towards Lovers Creek. The SWM outlet should be designed such that erosion and vegetation removals are minimized. Based on a review of these two reports, the Site achieves the required water balance; refer to the reports directly for details on this assessment.

An Erosion and Sediment Control Plan should be developed for the Site to guide the construction process. Prior to any construction activities taking place, it is essential that perimeter light-duty sediment fencing be installed around construction areas. Fencing should be properly keyed into the ground and securely fastened to vertical supports spaced ≤ 2 m apart. This key control measure will help prevent sediment from entering surface water features (i.e., wetlands and the watercourse) in the surrounding landscape. All sediment fencing should be regularly maintained and kept in good working condition, until the area has been stabilized and/or successfully revegetated. Any observed overland drainage channels

originating from Site, that may or may not have arisen because of erosion, should be directed to a check dam structure, prior to discharging to off-site areas.

Provided these measures are implemented, no negative impact to the watercourse or fish habitat are anticipated.

5.5 Significant Wildlife Habitat

Two special concern turtle species with potential habitat on and adjacent to the Site were identified through the habitat-based screening: Midland Painted Turtle and Snapping Turtle. Turtle nesting habitat for Midland Painted Turtle and Snapping Turtle is typically located in proximity to resident wetlands and waterbodies as neither of these species travels long distances to nesting sites. Nesting for both species generally occurs within 30 m of the waterbody. Provided the recommendations for watercourses in Section 5.4 are adhered to, no direct or indirect impacts are anticipated to potential turtle nesting habitat.

5.6 Habitat of Endangered and Threatened Species

Blanding's Turtle

While no observations of Blanding's Turtle were made on the Site, this species is known to occur in the general area (Ontario Nature, 2018) and can be difficult to detect due to low population numbers. Potential habitat for this species would include the PSW upstream (south) of the Site and Lake Simcoe downstream of the Site, within areas that provide permanent flooded conditions, and associated upland areas with suitable nesting habitat. This species has a General Habitat Description under the ESA, which specifies the following:

Category 1: Nest and the area within 30 m or Overwintering sites and the area within 30 m.

Category 2: The wetland complex (i.e. all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies.

Category 3: Area between 30 m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2 km of an occurrence.

No nesting sites were confirmed on the Site. Overwintering habitat must have soft mud substrates and enough depth to maintain free water beneath ice; on adjacent lands, suitable habitat is likely present within the PSW and riverine areas. Suitable substrates were not observed on the watercourse on Site. Potential Category 1 and 2 habitats on the Site would be protected by the recommended development setbacks from the watercourse. Category 3 habitat, which has the highest tolerance to alteration, is an existing developed property with commercial and residential uses. The existing Category 3 habitat provides limited suitable nesting conditions due to the existing development and compacted surfaces from parking areas. The lawns and gardens of the residential parcels may provide some nesting areas. The low quality of these nesting areas would make the Site generally unsuitable for this species. The Site does not provide a natural corridor for movement in the area as it is bordered to the south by Yonge Street. The watercourse and riparian corridor provide a suitable movement corridor to adjacent features (see **Figure 2** for an overview of the Site in relation to other natural features and corridors).

Turtles are particularly vulnerable to construction-related impacts on sites adjacent to watercourses and waterbodies. ESC fencing can also function as wildlife exclusion fencing. To function as wildlife exclusion, fencing should be installed around the entire perimeter of the construction area prior to May 1 of the year of construction to keep turtles and snakes from entering the construction area. This fencing should be made of light-duty sediment fence, staked at regular intervals, trenched-in at least 10-20 cm below ground, with an above ground height of at least 60 cm. The silt fence should be inspected regularly to ensure that it remains in good condition: any downed areas, rips, or holes should be repaired or replaced immediately. The area of construction should also be actively inspected for turtles and snakes each day prior to the start of work throughout the duration of construction.

As the Site contains potential habitat for turtles, workers should be aware of the nesting season for turtles, which extends from May 15 to August 15. All stockpiled materials should be kept inside the exclusion fencing area and ideally should be covered and well secured around the base, to prevent turtles from nesting in loose substrates. Should any nesting turtles be encountered, work should stop immediately and the turtle should be left to finish nesting

undisturbed. The turtle should be photographed and the nest marked to ensure it is not disturbed during construction, or until eggs have hatched (late August – September). If a nest is laid in a stockpile or other area that requires disturbance, Cambium should be contacted to determine if the nest can be relocated.

If any individual turtles are encountered, they should be photographed and allowed time to move out of harm's way. Species at Risk observations, including most species of snakes and turtles, should be reported to the Natural Heritage Information Centre.

Provided the recommendations herein are adhered to, no impact to Blanding's Turtle or their protected habitat is anticipated from the proposed development.

Bats

While the Site provides limited bat roosting habitat, vegetation clearing on the Site should avoid the active season for bats. Vegetation clearing on the Site should take place between October 1 and March 31 of any given year. Provided this window is respected, no impacts to at risk bats is anticipated from the proposed development.

5.7 Best Management Practices

Nesting birds and their nests, eggs, and young are protected under the *Migratory Birds Convention Act, 1994*. Vegetation clearing on the Site should occur outside the breeding bird season, which extends from April 15 to August 15 in the local area (as per Environment and Climate Change Canada Guidelines).

If vegetation clearing is to occur between April 15 and August 15, the vegetation should be investigated by a qualified biologist to confirm if any nests are present. Vegetation clearing can proceed provided there are no active nests. If active nests are confirmed, the nests should be left undisturbed until young have fledged or the nest is determined to be inactive.

If construction is planned to proceed during the breeding season, the area should be investigated for the presence of breeding birds and nests containing eggs and/or young, prior



to Site alteration. Nests discovered should be left undisturbed until young have fledged or the nest is determined to be inactive.

6.0 Policy Compliance

The proposed development is subject to the natural heritage policies of the PPS, LSPP, and the City of Barrie Official Plan. The proposed development complies with the PPS, as detailed in Table 4. The policies under the LSPP that apply to Settlement Areas (Section 2.2) have been addressed within this Study and are specifically referenced below as they apply to the Site. The City of Barrie Official Plan provides policies with respect to three levels of Natural Heritage Resources (NHR). Level 1 NHR on the Site include the watercourse, its development setback/buffer, and its connectivity to up and downstream features. Level 2 NHR on the Site includes the significant valleylands, SWH, watercourse (as above), and significant woodlands. No level 3 NHR were identified on the Site. This Study addresses the EIS requirements of the Official Plan for all confirmed features on or adjacent to the Site.

With respect to the LSPP, the proposed development does not directly impact fish habitat in the watercourse or the 30 m riparian area for that feature, and recommends that the riparian setback be maintained as natural self-sustaining vegetation. In addition, recommendations herein include enhancement of the riparian area through the management of invasive species to provide a net-gain for riparian woodland form and function. The Stormwater Management Plan for the Site should address water quality and quantity requirements prior to discharge to the watercourse.

Table 4 PPS Policy Compliance Summary

Key Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
Significant Wetland in Ecoregions 5E, 6E and 7E	No	Yes	Yes: PPS 2.1.4(a) and 2.1.8
	Explanation: The PSW is on adjacent lands and no impact from the proposed development is anticipated.		
Fish Habitat	No	Yes	Yes: PPS 2.1.6 and 2.1.8
	Explanation: The proposed development will not directly impact Lovers Creek as no in-water work is planned and will be provided		



	with a 30 m buffer. Any in-direct impacts will be mitigated using erosion and sediment controls and the recommendations provided herein.		
Significant Wildlife Habitat (including habitat of special concern species)	Candidate	Candidate	Yes: PPS 2.1.5 and 2.1.8
	Explanation: SWH is associated with Lovers Creek and the PSW; as such, setback and mitigations measures for these features will also protect the SWH features on the Site and/or adjacent lands.		
Habitat of Threatened and Endangered Species	Potentially	Potentially	Yes: PPS 2.1.7
	Explanation: Potential habitat for Blanding's Turtle exists on the Site and adjacent lands, with the proposed development within Category 3 habitat. No impact to Blanding's Turtle or their protected habitat is anticipated from the proposed development provided the construction and setback recommendations herein are adhered to.		
Significant Woodlands in Ecoregions 6E and 7E	Yes	Yes	Yes: PPS 2.1.5 and 2.1.8
	Explanation: The form and function of the woodland will be protected and no negative impact from the proposed development is anticipated. A portion of the woodland will be removed and appropriate compensation and enhancement of the retained woodland will be provided through an Ecological Offsetting Strategy.		
Significant Valleylands in Ecoregions 6E and 7E	Yes	Yes	Yes: PPS 2.1.5 and 2.1.8
	Explanation: The valleyland feature will be protected on the Site. No negative impact to this feature is anticipated provided the measures to protect the watercourse and woodlands are implemented as detailed herein.		

7.0 Summary of Mitigation, Compensation, and Best Practices

The following recommendations are provided with respect to the proposed development:

1. The boundaries of the following confirmed natural features should be shown on Site Plans for the proposed development, along with their respective development setback as applicable:
 - 1.1. Top of Bank as limit of the significant valleyland
 - 1.2. Watercourse/Fish Habitat; 30 m development setback
2. The 30 m watercourse setback should be maintained as existing forest cover and be allowed to naturally self-sustain.
3. A Landscaping Plan and Edge Management Plan should be provided for the proposed development. These should seek to improve the interface between the woodland and developed areas of the Site and should focus on native species and non-invasive horticultural species.
4. The proposed development includes an encroachment into the significant woodland; an area of approximately 0.80 ha. The woodland removal will require an appropriate woodland compensation plan, as specified through LSRCA's Ecological Offsetting Policy (July 2021).
5. The form of the retained woodland could be enhanced through a woodland compensation plan that includes management of invasive species within the retained woodland. Invasive species management would be considered an alternate compensation project under the LSRCA's Ecological Offsetting Policy (July 2021) and should be discussed with them to determine how this offsetting would be calculated.
6. Best management practices to reduce the spread of invasive species should be implemented at the Site.
7. Outdoor lights should be operated on timers, rather than by motion detection, should be directed at the ground, rather than into the adjacent natural areas, and should have wattage as low as practical while meeting the safety intent of the lighting.

8. The Stormwater Management Plan prepared for the Site should specifically address potential stormwater-related impacts to water quality and quantity of the surrounding wetlands and watercourse, through quality control measures and a feature-based water balance study.
9. An Erosion and Sediment Control (ESC) Plan that includes perimeter light duty sediment fencing should be implemented along the watercourse side of the construction area prior to the commencement of any Site alteration.
 - 9.1. Fencing should be properly keyed into the ground and securely fastened to vertical supports spaced ≤ 2 m apart.
 - 9.2. All sediment fencing should be regularly maintained and kept in good working condition, until the area has been stabilized and/or successfully revegetated.
 - 9.3. All ESC fencing should be removed following construction, once exposed soils have been revegetated.
10. Wildlife exclusion fencing should be installed around the entire perimeter of the construction area prior to May 1 of the year of construction. This fencing should be made of light-duty sediment fence, staked at regular intervals, trenched-in at least 10-20 cm below ground, with an above ground height of at least 60 cm. The silt fence should be inspected regularly to ensure that it remains in good condition: and any downed areas, rips, or holes should be repaired or replaced immediately. The area of construction should also be actively inspected for turtles and snakes each day prior to the start of work throughout the duration of construction.
11. Workers should be aware of the nesting season for turtles, which extends from May 15 to August 15. All stockpiled materials should be kept inside the exclusion fencing area and ideally should be covered and well secured around the base, to prevent turtles from nesting in loose substrates. Should any nesting turtles be encountered, work should stop immediately and the turtle should be left to finish nesting undisturbed. The turtle should be photographed and the nest marked to ensure it is not disturbed during construction, or until eggs have hatched (late August – September). If a nest is laid in a stockpile or other area

that requires disturbance, Cambium should be contacted to determine if the nest can be relocated.

12. If any individual turtles are encountered, they should be photographed and allowed time to move out of harm's way.
13. Vegetation clearing on the Site should occur outside the breeding bird season and bat roost season, which collectively extends from April 1 to September 31 in the local area (as per Environment and Climate Change Canada and MOECP Guidelines).
14. If vegetation clearing is to occur between April 1 and August 31, the vegetation should be investigated by a qualified biologist to confirm if any bird nests are present. Vegetation clearing can proceed provided there are no active nests. If active nests are confirmed, the nests should be left undisturbed until the young have fledged or the nest is determined to be inactive.
15. Species at Risk observations, including most species of snakes and turtles, should be reported to the Natural Heritage Information Centre.



8.0 Closing

In closing, potential negative impacts associated with the proposed development and site alteration can be appropriately minimized, provided that the recommendations outlined in Section 7.0 are adhered to. The information presented herein demonstrates that the proposed development can be carried out in a way that will not adversely impact natural heritage and hydrologic features and function identified on or adjacent to the subject Site. Furthermore, the proposed development complies with applicable provincial policy.

Respectfully submitted,

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10.0 Glossary of Terms

ANSI: Area of Natural and Scientific Interest	GIS: Geographic Information System
ARA: Aquatic Resources Area	GLSL: Great Lakes – St. Lawrence
ARA: Aggregate Resources Act	GPGGH: Growth Plan for the Greater Golden Horseshoe
AS: Agricultural System	GPS: Global Positioning System
ATK: Aboriginal Traditional Knowledge	HSA: Habitat Suitability Analysis
BMA: Bear Management Area	HIS: Habitat Suitability Index
BMP: Best Management Practice	KHA: Key Hydrologic Areas
CA: Conservation Authority	KHF: Key Hydrologic Features
CEAA: Canadian Environmental Assessment Act/Agency	KNHF: Key Natural Heritage Features
CFA: Canadian Forestry Association	LCFSP: Licence to Collect Fish for Scientific Purposes
CFIP: Community Fisheries Involvement Program	LIO: Land Information Ontario
CFS: Canadian Forestry Service	LRIA: Lake and Rivers Improvement Act
CHU: Critical Habitat Unit	LUP: Land Use Permit or Plan
CH: Cultural Heritage	MA: Management Area
CLI: Canada Land Inventory	MAFA: Moose Aquatic Feeding Area
CLU: Crown Land Use	MCEA: Municipal Class Environmental Assessment
COSSARO: Committee on the Status of Species at Risk in Ontario	MECP: Ontario Ministry of Environment, Conservation and Parks
CR: Conservation Reserve	MNDMRF: Ontario Ministry of Natural Resources and Forestry
CWIP: Community Wildlife Involvement Program	NER: Natural Environment Report
CWS: Canadian Wildlife Service	NHIC: Natural Heritage Information Centre
DFO: Fisheries and Oceans Canada	NHIS: Natural Heritage Information System
EA: Environmental Assessment	NHS: Natural Heritage System
EAA: Environmental Assessment Act	OBM: Ontario Base Map
EAB: Emerald Ash Borer	OFIS: Ontario Fisheries Information System
EBR: Environmental Bill of Rights	OLI: Ontario Land Inventory
EIA: Environmental Impact Assessment	OMAFRA: Ontario Ministry of Agriculture, Food and Rural Affairs
EIS: Environmental Impact Study/Statement	OWES: Ontario Wetland Evaluation System
ELC: Ecological Land Classification System	PPS: Provincial Policy Statement (2014)
ELUP: Ecological Land Use Plan	PSW: Provincially Significant Wetland
END: Endangered species	RLUP: Regional Land Use Plan
EPA: Environmental Protection Act	RMP: Regional Management Plan
ER: Environmental Registry	R.P.F.: Registered Professional Forester
ESA: Endangered Species Act (2007)	SAR: Species at Risk
ESA: Environmentally Sensitive Area	SARO: Species at Risk in Ontario
ESC: Erosion and Sediment Control	SC: Special Concern species



F&W: Fish and Wildlife
FA: Fisheries Act (Federal)
FEC: Forest Ecosystem Classification
FMP: Forest Management Plan
FRI: Forest Resources Inventory
FWCA: Fish and Wildlife Conservation Act
GGH: Greater Golden Horseshoe
GHP: General Habitat Protection

SWH: Significant Wildlife Habitat
SWM: Stormwater Management
THR: Threatened species
TOR: Terms of Reference
TPP: Tree Preservation Plan
WIA: Woodlands Improvement Act
WMU: Wildlife Management Unit

11.0 Standard Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

Reliance on Materials and Information

The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work or reports.

Facts, conditions, information and circumstances may vary with time and locations and Cambium's work is based on a review of such matters as they existed at the particular time and location indicated in its reports. No assurance is made by Cambium that the facts, conditions, information, circumstances or any underlying assumptions made by Cambium in connection with the work performed will not change after the work is completed and a report is submitted. If any such changes occur or additional information is obtained, Cambium should be advised and requested to consider if the changes or additional information affect its findings or results.

When preparing reports, Cambium considers applicable legislation, regulations, governmental guidelines and policies to the extent they are within its knowledge, but Cambium is not qualified to advise with respect to legal matters. The presentation of information regarding applicable legislation, regulations, governmental guidelines and policies is for information only and is not intended to and should not be interpreted as constituting a legal opinion concerning the work completed or conditions outlined in a report. All legal matters should be reviewed and considered by an appropriately qualified legal practitioner.

Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

Reliance

Cambium's services, work and reports may be relied on by the client and its corporate directors and officers, employees, and professional advisors. Cambium is not responsible for the use of its work or reports by any other party, or for the reliance on, or for any decision which is made by any party using the services or work performed by or a report prepared by Cambium without Cambium's express written consent. Any party that relies on services or work performed by Cambium or a report prepared by Cambium without Cambium's express written consent, does so at its own risk. No report of Cambium may be disclosed or referred to in any public document without Cambium's express prior written consent. Cambium specifically disclaims any liability or responsibility to any such party for any loss, damage, expense, fine, penalty or other such thing which may arise or result from the use of any information, recommendation or other matter arising from the services, work or reports provided by Cambium.

Limitation of Liability

Potential liability to the client arising out of the report is limited to the amount of Cambium's professional liability insurance coverage. Cambium shall only be liable for direct damages to the extent caused by Cambium's negligence and/or breach of contract. Cambium shall not be liable for consequential damages.

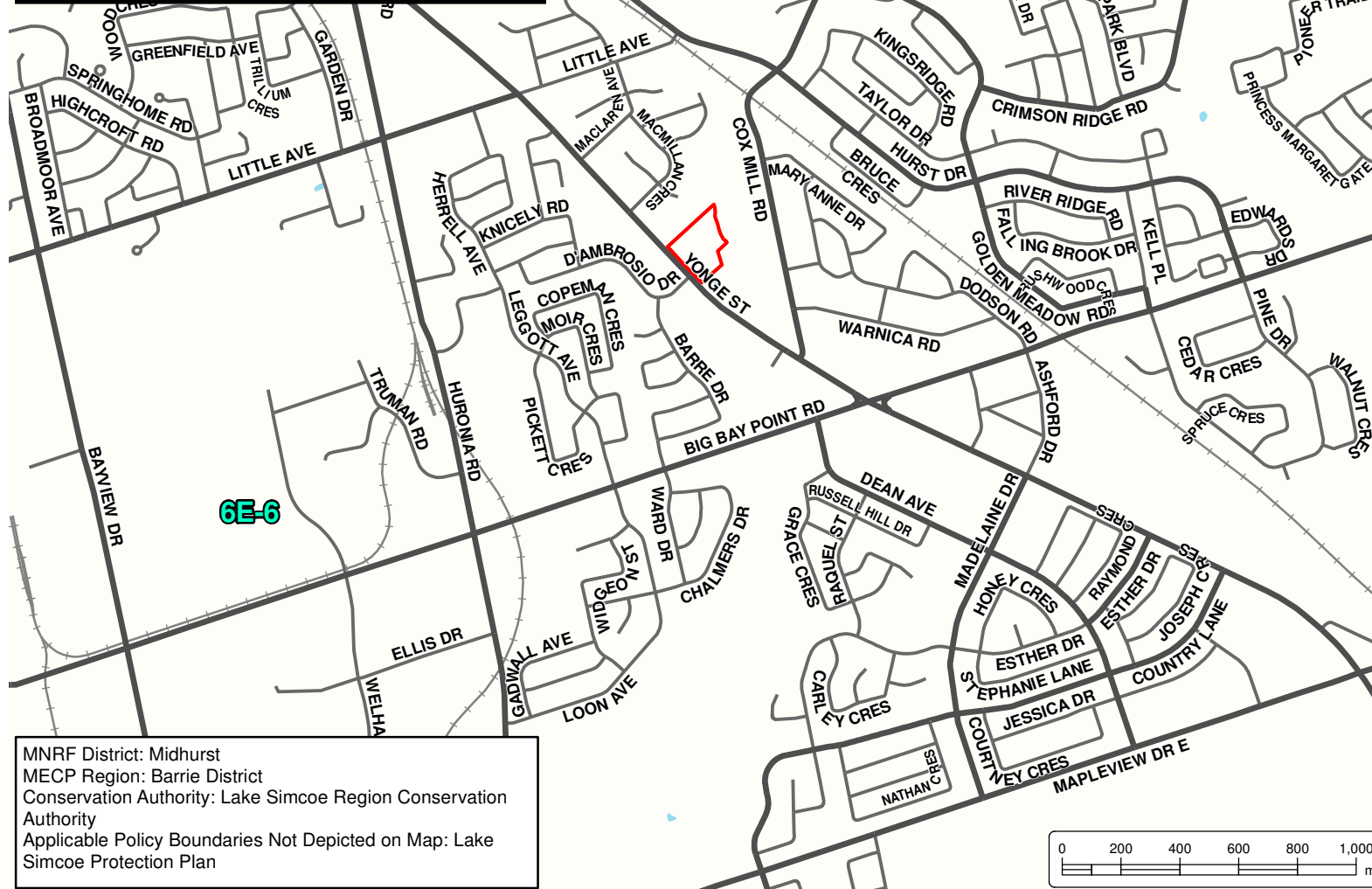
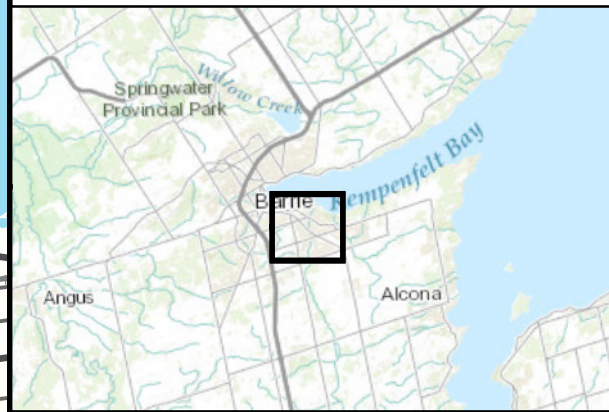
Personal Liability

The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.



Appended Figures

REGIONAL LOCATION



ENVIRONMENTAL IMPACT STUDY

CORE GROUP
(2570974 ONTARIO INC.)
505, 511, 515, 533 Young Street,
Barrie, Ontario

LEGEND

- Major Road
- Minor Road
- Railroad
- Water Area
- Ecodistrict
- Site (2.70 ha) (approximate)

Notes:
- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources and Forestry or the Ontario Government).
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.



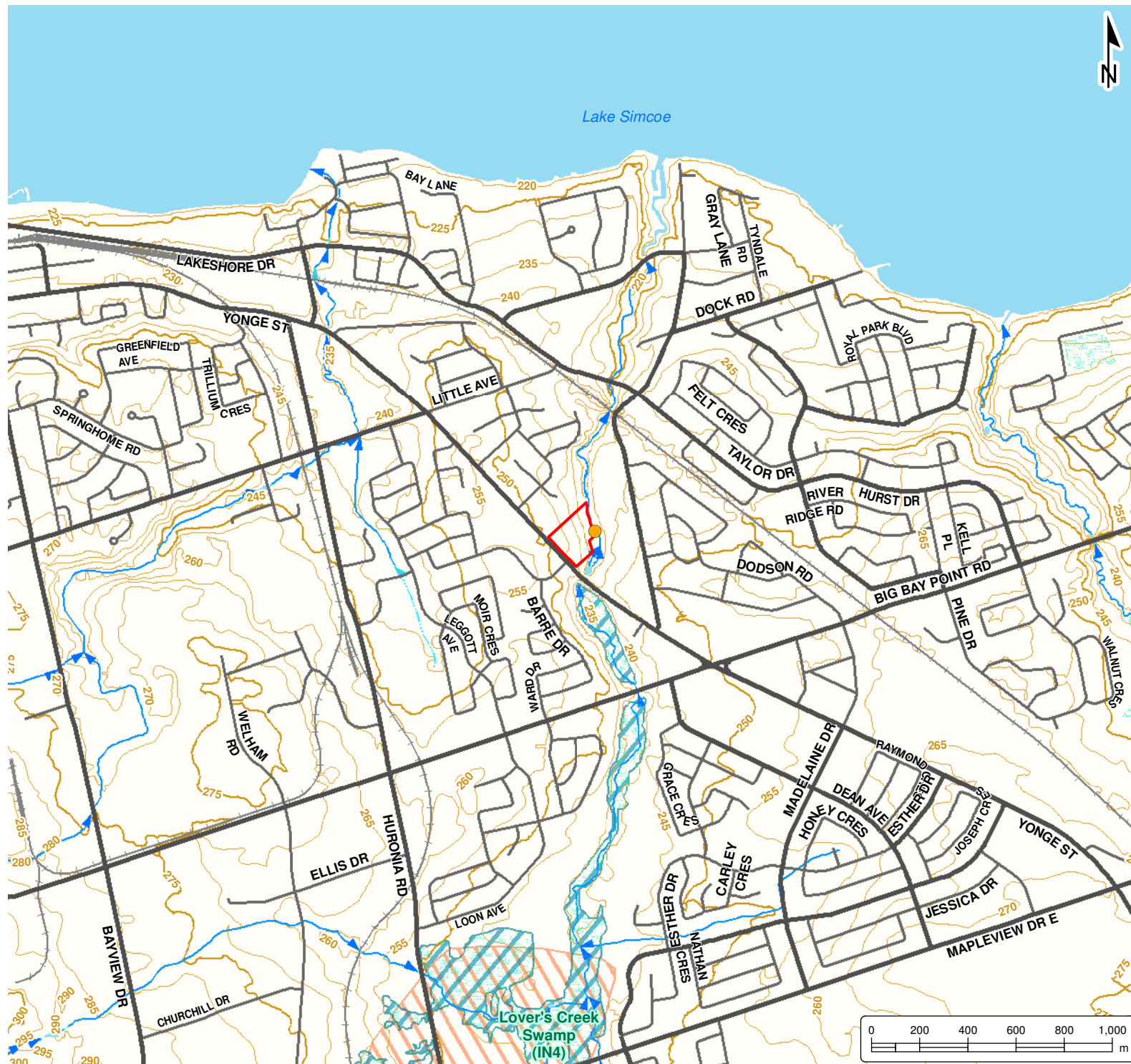
194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.cambium-inc.com

SITE LOCATION AND SPECIAL PLANNING AREAS

Project No.: 9574-003	Date: September 2021
Scale: 1:22,500	Rev.: NAD 1983 UTM Zone 17N
Created by: MAT	Checked by: ALH
Figure: 1	

MNRF District: Midhurst
MECP Region: Barrie District
Conservation Authority: Lake Simcoe Region Conservation Authority
Applicable Policy Boundaries Not Depicted on Map: Lake Simcoe Protection Plan

O:\GIS\MD\9500-9699\974-003 Renaissance Reclamation Barrie Trust - EIS - 505 Yonge Street, Barrie\2021-09-10 FIG 2 - Local Natural Heritage Features.mxd



ENVIRONMENTAL IMPACT STUDY

CORE GROUP
(2570974 ONTARIO INC.)
505, 511, 515, 533 Young Street,
Barrie, Ontario

LEGEND

- Aquatic Resources Survey Point
- Major Road
- Minor Road
- Railroad
- Watercourse, Intermittent
- Watercourse, Permanent
- Contour 5m Interval (Major)
- Contour 5m Interval (Minor)
- Unevaluated Wetlands
- Provincially Significant Wetlands
- Water Area
- Deer Wintering Area (Stratum 2)
- Site (2.70 ha) (approximate)

Notes:
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LOCAL NATURAL HERITAGE FEATURES

Project No.: 9574-003	Date: September 2021
Scale: 1:22,500	Rev.:
Created by: MAT	Projection: NAD 1983 UTM Zone 17N
Checked by: ALH	Figure: 2



VEGETATION COMMUNITIES

1: FOD4; Dry - Fresh Deciduous Forest

2: MAM2; Mineral Meadow Marsh

3: FOM7-2; Fresh - Moist White Cedar - Hardwood Mixed Forest

CVC Developed Commercial

ENVIRONMENTAL IMPACT STUDY

CORE GROUP
(2570974 ONTARIO INC.)
505, 511, 515, 533 Young Street,
Barrie, Ontario

LEGEND

- 120 m Adjacent Lands
- Site (2.70 ha) (approximate)
- Breeding Bird Survey Station
- Cambium Interpreted Top of Bank
- Watercourse - Permanent
- Aquatic Habitat Survey Reach
- Staked Woodland Boundary (Sept 2, 2021)
- Drainage Feature
- Vegetation Community
- Watercourse, Intermittent
- Contour 5m Interval (Major)
- Contour 5m Interval (Minor)
- Unevaluated Wetlands
- Provincially Significant Wetlands
- Wetland (0.03 ha & 0.05 ha)

Notes:

- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources and Forestry or the Ontario Government).
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SITE NATURAL HERITAGE FEATURES

Project No.: 9574-003	Date: September 2021
Scale: 1:2,750	Rev.: NAD 1983 UTM Zone 17N
Created by: MAT	Checked by: ALH
Figure: 3	

O:\GIS\MD\9500-9599\9574-003 Renaissance Refinement Barrie Trust - EIS - 505 Yonge Street, Barrie\2021-09-10 FIG 4 - Natural Heritage Constraints.mxd



ENVIRONMENTAL IMPACT STUDY

CORE GROUP
(2570974 ONTARIO INC.)
505, 511, 515, 533 Young Street,
Barrie, Ontario

LEGEND

- 120 m Adjacent Lands
- Site (2.70 ha) (approximate)
- Watercourse - Permanent
- Cambium Interpreted Top of Bank
- 30 m Wetland Setback
- 30 m Watercourse Setback
- Woodland Boundary
- Drainage Feature
- Proposed Development Area (1.65 ha)
- Watercourse, Intermittent
- Contour 5m Interval (Major)
- Contour 5m Interval (Minor)
- Unevaluated Wetlands
- Provincially Significant Wetlands

Notes:
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www.cambium-inc.com

NATURAL HERITAGE CONSTRAINTS

Project No.:	9574-003	Date:	September 2021
Scale:	1:2,750	Rev.:	
Created by:	MAT	Checked by:	ALH
Figure:			4



Appendix A

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.

Andrea Hicks

From: Kate Lillie <K.Lillie@lsrca.on.ca>
Sent: July 19, 2021 11:34 AM
To: Andrea Hicks
Cc: Kelly Nesbitt; Shawn Filson; Cambium File; Keegan McKitterick
Subject: RE: TOR - 505-533 Yonge Street, Barrie (9574-003)
Attachments: 2021-06-20 TOR checklist - 505-533 Yonge St Barrie_KLedit.pdf

Hi Andrea,

Thanks for your email and your patience. Kelly forwarded your inquiry to me for response.

I've reviewed the Terms of Reference checklist you provided and have flagged a few additional requirements (see attached). These include:

- Need for a catchment-based water balance.
- Potential additional studies that may be required – Landscape/Restoration/Planting Plan, Edge Management Plan, Ecological Offsetting Strategy

The woodland dripline was confirmed with LSRCA in 2017 for 505 Yonge Street, but not for the other parcels. A site visit to confirm feature limits for those areas will still be required. We can re-confirm the limit for woodland at 505 Yonge St. at the same time. A site visit fee will apply. Please contact us to coordinate a date/time to complete this site visit.

The valleyland feature was not staked with LSRCA (to the best of my knowledge). I had understood that a geotechnical study was being completed to inform the hazard limit (stable top of bank). If there's additional info or something I'm not aware of about this, please let me know. Otherwise, this can be investigated/discussed further during a site visit as well.

Kind regards,

Kate Lillie, HBSc, EP, ISA
Natural Heritage Ecologist
Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
905-895-1281, ext. 286 | 1-800-465-0437
k.lillie@LSRCA.on.ca | www.LSRCA.on.ca

Please note: The LSRCA Board of Directors approved a change to our Fee Policy. A NEW Preconsultation Fee has come into effect as of April 1st, 2021. Please click [here](#) for the new fee schedule.

Twitter: @LSRCA

Facebook: LakeSimcoeConservation

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From: Andrea Hicks <Andrea.Hicks@cambium-inc.com>
Sent: June 20, 2021 10:59 AM

To: Kelly Nesbitt <K.Nesbitt@lsrca.on.ca>

Cc: Cambium File <file@cambium-inc.com>; Keegan McKittrick <Keegan.McKittrick@cambium-inc.com>

Subject: TOR - 505-533 Yonge Street, Barrie (9574-003)

CAUTION: This email originated outside of LSRCA. DO NOT click links or open attachments unless you recognize the sender and trusted content. If in doubt, contact the IT Helpdesk at ITHelpdesk@lsrca.on.ca

Good morning Kelly,

Cambium has been retained by the proponent to conduct the EIS at 505, 511, 515, and 533 Yonge Street, City of Barrie. I have attached the proposed Terms of Reference using LSRCA's checklist form. There was a previous EIS completed for the properties and LSRCA conducted a staking site visit in 2017. We'd like to confirm that another visit is not required this year, provided the features have not changed, based on the 5 year validity that the TOR notes for EIS field work. If a visit will be required, please confirm when that can be – we will be available at a time that suits LSRCA staff.

Kind Regards,
Andrea Hicks



Andrea Hicks, M.Sc.

Group Manager - Natural Science

Cambium Inc. - Peterborough

Environmental | Building Sciences | Geotechnical | Construction Monitoring

p: 705.742.7900 x 235 | **c:** 705.957.9046 | **toll:** 866.217.7900 | **w:** cambium-inc.com

Under modified work conditions in response to the current pandemic and government directives, Cambium continues to provide the professional services you have come to expect to guide good decisions. The well-being and safety of our teams, clients, and communities are a top priority. We ask for your patience and look forward to working together as we evolve into the "new normal". Stay safe. Better days are ahead.

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Appendix B

Conceptual Site Plans



Appendix C

Photographic Log



Photo 1 Lovers Creek, standing at NE corner of the Site, looking upstream, June 2021.



Photo 2 Signs of erosion on channel banks, June 2021.



Photo 3 Lovers Creek, looking upstream, June 2021.



Photo 4 Undercut banks, June 2021.



Photo 5 View of pool within reach, looking upstream, June 2021.



Appendix D

Vegetation Species List



VEGETATION
COMMUNITY

CLASSIFICATION: FOD4

COMMUNITY #: 1

LOCATION: 505 Yonge St,
Barrie

COORDINATES: 44.5973454,
-78.1955776

PROJECT NUMBER: 9574-003

DATE: June 18, 2021

PROJECT
MANAGER: Andrea Hicks

FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Annual Fleabane	<i>Erigeron annuus</i>	<i>Asteraceae</i>	3	0			S5
Black Locust	<i>Robinia pseudoacacia</i>	<i>Fabaceae</i>	3				SNA
Black Walnut	<i>Juglans nigra</i>	<i>Juglandaceae</i>	3	5			S4?
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	<i>Asteraceae</i>	3	1			S5
Canada Thistle	<i>Cirsium arvense</i>	<i>Asteraceae</i>	3				SNA
Chokecherry	<i>Prunus virginiana</i> var. <i>virginiana</i>	<i>Rosaceae</i>	3	2			S5
Coltsfoot	<i>Tussilago farfara</i>	<i>Asteraceae</i>	3				SNA
Common Lilac	<i>Syringa vulgaris</i>	<i>Oleaceae</i>	5				SNA
Common Timothy	<i>Phleum pratense</i> ssp. <i>pratense</i>	<i>Poaceae</i>	3				SNA
European Buckthorn	<i>Rhamnus cathartica</i>	<i>Rhamnaceae</i>	0				SNA
European Lily-of-the-valley	<i>Convallaria majalis</i>	<i>Liliaceae</i>	5				SNA
Japanese Knotweed	<i>Reynoutria japonica</i> var. <i>japonica</i>	<i>Polygonaceae</i>	3				SNA
Lesser Periwinkle	<i>Vinca minor</i>	<i>Apocynaceae</i>	5				SNA
Manitoba Maple	<i>Acer negundo</i>	<i>Aceraceae</i>	0	0			S5
Norway Maple	<i>Acer platanoides</i>	<i>Aceraceae</i>	5				SNA
Orchard Grass	<i>Dactylis glomerata</i>	<i>Poaceae</i>	3				SNA
Red Raspberry	<i>Rubus idaeus</i>	<i>Rosaceae</i>	3	2			S5
Siberian Elm	<i>Ulmus pumila</i>	<i>Ulmaceae</i>	3				SNA
Smooth Brome	<i>Bromus inermis</i>	<i>Poaceae</i>	5				SNA
Staghorn Sumac	<i>Rhus typhina</i>	<i>Anacardiaceae</i>	3	1			S5
Sugar Maple	<i>Acer saccharum</i>	<i>Aceraceae</i>	3	4			S5
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	<i>Caprifoliaceae</i>	3				SNA
Trembling Aspen	<i>Populus tremuloides</i>	<i>Salicaceae</i>	0	2			S5
Virginia Creeper	<i>Parthenocissus</i> <i>quinquefolia</i>	<i>Vitaceae</i>	3	6			S4?
White Elm	<i>Ulmus americana</i>	<i>Ulmaceae</i>	-3	3			S5



VEGETATION
COMMUNITY

CLASSIFICATION: FOD4 COMMUNITY #: 1

LOCATION: 505 Yonge St,
Barrie

COORDINATES: 44.5973454,
-78.1955776

PROJECT NUMBER: 9574-003

DATE: June 18, 2021

PROJECT
MANAGER: Andrea Hicks

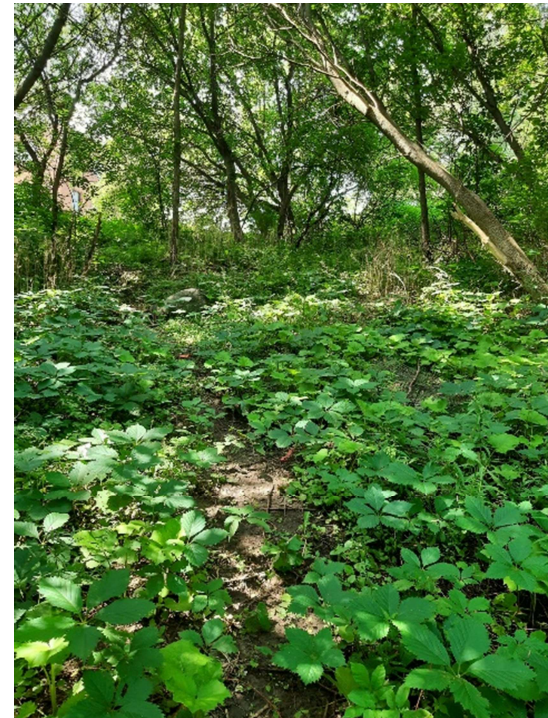
FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Wild Bergamot	<i>Monarda fistulosa</i> var. <i>fistulosa</i>	<i>Lamiaceae</i>	3	6			SU
Wild Carrot	<i>Daucus carota</i>	<i>Apiaceae</i>	5				SNA
Wild Chicory	<i>Cichorium intybus</i>	<i>Asteraceae</i>	5				SNA
Wild Cucumber	<i>Echinocystis lobata</i>	<i>Cucurbitaceae</i>	-3	3			S5

NOTES: Woodland in NW corner extends along N boundary towards creek and surrounds existing developed areas of the Site.

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: MAM2

COMMUNITY #: 2

LOCATION: 505 Yonge St,
Barrie

COORDINATES: 44.5973454,
-78.1955776

PROJECT NUMBER: 9574-003

DATE: June 18, 2021

PROJECT
MANAGER: Andrea Hicks

FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Bittersweet Nightshade	<i>Solanum dulcamara</i>	<i>Solanaceae</i>	0				SNA
Broad-leaved Cattail	<i>Typha latifolia</i>	<i>Typhaceae</i>	-5	1			S5
Broad-leaved Enchanter's Nightshade	<i>Circaea canadensis</i>	<i>Onagraceae</i>	3	2			S5
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	<i>Asteraceae</i>	3	1			S5
Purple Loosestrife	<i>Lythrum salicaria</i>	<i>Lythraceae</i>	-5				SNA
Red-osier Dogwood	<i>Cornus sericea</i>	<i>Cornaceae</i>	-3	2			S5
Sensitive Fern	<i>Onoclea sensibilis</i>	<i>Dryopteridaceae</i>	-3	4			S5
Spotted Jewelweed	<i>Impatiens capensis</i>	<i>Balsaminaceae</i>	-3	4			S5

NOTES:



VEGETATION
COMMUNITY

CLASSIFICATION: MAM2

COMMUNITY #: 2

LOCATION: 505 Yonge St,
Barrie

COORDINATES: 44.5973454,
-78.1955776

PROJECT NUMBER: 9574-003

DATE: June 18, 2021

PROJECT
MANAGER: Andrea Hicks

FIELD STAFF: Keegan McKittrick

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





VEGETATION
COMMUNITY

CLASSIFICATION: FOM7-2 COMMUNITY #: 3

LOCATION: 505 Yonge St,
Barrie

COORDINATES: 44.5973454,
-78.1955776

PROJECT NUMBER: 9574-003

DATE: June 18, 2021

PROJECT
MANAGER: Andrea Hicks

FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Black Cherry	<i>Prunus serotina</i> var. <i>serotina</i>	<i>Rosaceae</i>	3	3			S5
Chokecherry	<i>Prunus virginiana</i> var. <i>virginiana</i>	<i>Rosaceae</i>	3	2			S5
Coltsfoot	<i>Tussilago farfara</i>	<i>Asteraceae</i>	3				SNA
Eastern Hemlock	<i>Tsuga canadensis</i>	<i>Pinaceae</i>	3	7			S5
Eastern White Cedar	<i>Thuja occidentalis</i>	<i>Cupressaceae</i>	-3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	<i>Rhamnaceae</i>	0				SNA
European Lily-of-the-valley	<i>Convallaria majalis</i>	<i>Liliaceae</i>	5				SNA
Garlic Mustard	<i>Alliaria petiolata</i>	<i>Brassicaceae</i>	0				SNA
Graceful Sedge	<i>Carex gracillima</i>	<i>Cyperaceae</i>	3	4			S5
Large-toothed Aspen	<i>Populus grandidentata</i>	<i>Salicaceae</i>	5	5			S5
Red Ash	<i>Fraxinus pennsylvanica</i>	<i>Oleaceae</i>	-3	3			S4
Red Maple	<i>Acer rubrum</i>	<i>Aceraceae</i>	0	4			S5
Smooth Bedstraw	<i>Galium mollugo</i>	<i>Rubiaceae</i>	5				SNA
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	<i>Vitaceae</i>	3	6			S4?
Wild Strawberry	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	<i>Rosaceae</i>	3	2			S5

NOTES: FOM forest along valley lowlands cedar dominated with green ash and mixed hardwoods



VEGETATION
COMMUNITY

CLASSIFICATION: FOM7-2

COMMUNITY #: 3

LOCATION: 505 Yonge St,
Barrie

COORDINATES: 44.5973454,
-78.1955776

PROJECT NUMBER: 9574-003

DATE: June 18, 2021

PROJECT
MANAGER: Andrea Hicks

FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

VEGETATION COMMUNITY PHOTOS:





Appendix E

Fish Species List

Table - Fish Species List and Life History Information

Family	Common name	Scientific name	S-Rank	SARA	ESA	Tolerance ¹	Thermal Regime ¹	Spawning Months ¹	Spawning Habitat Preferences ²														
									Water depth (m)				Cover		Substrate								
									0-1	1-2	2-5	5+	Submergent Vegetation	Emergent Vegetation	Bedrock	Boulder	Cobble	Rubble	Gravel	Sand	Silt	Clay	Hard-pan Clay
Catostomidae	White Sucker	<i>Catostomus commersoni</i>	S5			Tolerant	Coolwater	April-June	X	X	-	-	low	low	-	-	-	medium	high	medium	-	-	-
Centrarchidae	Bluegill	<i>Lepomis macrochirus</i>	S5			Intermediate	Warmwater	June-August	X	X	X	-	high	high	-	-	-	-	high	high	medium	-	-
Centrarchidae	Largemouth Bass	<i>Micropterus salmoides</i>	S5			Tolerant	Warmwater	May-June	X	X	-	-	medium	high	-	-	-	low	low	high	high	high	-
Centrarchidae	Pumpkinseed	<i>Lepomis gibbosus</i>	S5			Intermediate	Warmwater	May-August	X	X	-	-	high	high	-	-	-	-	high	high	-	medium	-
Centrarchidae	Rock Bass	<i>Ambloplites rupestris</i>	S5			Intermediate	Coolwater	May-June	X	X	-	-	low	low	-	-	high	high	high	medium	medium	medium	-
Centrarchidae	Smallmouth Bass	<i>Micropterus dolomieu</i>	S5			Intermediate	Coolwater	May-June	X	X	-	-	low	low	medium	-	-	high	high	medium	-	-	-
Cottidae	Mottled Sculpin	<i>Cottus bairdi</i>	S5			Intermediate	Coolwater	April-May	X	-	-	-	-	-	-	high	high	high	high	high	-	-	-
Cottidae	Slimy Sculpin	<i>Cottus cognatus</i>	S5			Intolerant	Coldwater	April-May	X	X	X	X	-	-	-	high	high	high	high	low	low	-	-
Cyprinidae	Blackchin Shiner	<i>Notropis heterodon</i>	S4			Intolerant	Coolwater	June-August	X	-	-	-	high	high	-	-	-	-	high	high	high	-	-
Cyprinidae	Blacknose Dace	<i>Rhinichthys atratulus</i>	S5			Intermediate	Coolwater	May-June	X	-	-	-	-	-	-	-	-	high	high	medium	-	-	-
Cyprinidae	Blacknose Shiner	<i>Notropis heterolepis</i>	S5			Intolerant	Coolwater	June-July	X	-	-	-	high	high	-	-	-	-	medium	high	-	-	-
Cyprinidae	Bluntnose Minnow	<i>Pimephales notatus</i>	S5			Intermediate	Warmwater	June-August	X	X	X	-	medium	medium	-	medium	medium	high	high	medium	-	-	-
Cyprinidae	Brassy Minnow	<i>Hybognathus hankinsoni</i>	S5			Intermediate	Coolwater	May-July	X	-	-	-	high	high	-	-	-	-	medium	high	high	-	-
Cyprinidae	Common Shiner	<i>Luxilus cornutus</i>	S5			Intermediate	Coolwater	May-June	X	-	-	-	low	low	-	-	-	medium	high	medium	-	-	-
Cyprinidae	Creek Chub	<i>Semotilus atromaculatus</i>	S5			Intermediate	Coolwater	May-June	X	-	-	-	-	-	-	-	-	high	high	high	-	-	-
Cyprinidae	Emerald Shiner	<i>Notropis atherinoides</i>	S5			Intermediate	Coolwater	June-August	-	-	-	-	low	low	-	medium	medium	high	high	high	-	-	-
Cyprinidae	Fathead Minnow	<i>Pimephales promelas</i>	S5			Tolerant	Warmwater	May-August	X	X	-	-	medium	medium	-	-	-	-	medium	high	high	-	-
Cyprinidae	Finescale Dace	<i>Phoxinus neogaeus</i>	S5			Intermediate	Coolwater	April-May	X	X	-	-	-	-	-	-	-	-	medium	high	high	-	-
Cyprinidae	Hornyhead Chub	<i>Nocomis biguttatus</i>	S4			Intermediate	Coolwater	May-July	X	-	-	-	low	low	-	-	high	high	high	medium	low	-	-
Cyprinidae	Lake Chub	<i>Coxeius plumbeus</i>	S5			Intermediate	Coldwater	April-June	X	X	-	-	-	-	-	medium	-	high	high	high	low	-	-
Cyprinidae	Longnose Dace	<i>Rhinichthys cataractae</i>	S5			Intermediate	Coolwater	May-July	X	X	-	-	-	-	-	-	-	medium	high	high	medium	-	-
Cyprinidae	Northern Redbelly Dace	<i>Phoxinus eos</i>	S5			Intermediate	Coolwater	May-July	X	X	-	-	high	-	-	-	-	-	medium	high	high	-	-
Cyprinidae	Pearl Dace	<i>Margariscus margarita</i>	S5			Intermediate	Coolwater	May-June	X	-	-	-	low	low	-	-	-	-	high	high	-	-	-
Cyprinidae	River Chub	<i>Nocomis micropogon</i>	S4			Intermediate	Coolwater	May-June															
Cyprinidae	Rosyface Shiner	<i>Notropis rubellus</i>	S4			Intermediate	Warmwater	May-July	X	-	-	-	-	-	-	-	high	high	high	high	-	-	-
Esocidae	Northern Pike	<i>Esox lucius</i>	S5			Intermediate	Coolwater	March-May	X	X	-	-	-	high	-	-	-	low	low	high	high	-	-
Gasterosteidae	Brook Stickleback	<i>Culaea inconstans</i>	S5			Intermediate	Coolwater	May-July	X	-	-	-	high	high	-	-	-	-	medium	high	high	-	-
Gobiidae	Round Goby	<i>Neogobius melanostomus</i>	SNA			Intermediate	Coolwater	May-July	X	X	X	-	low	-	-	-	high	high	high	medium	-	-	-
Ictaluridae	Brown Bullhead	<i>Ameiurus nebulosus</i>	S5			Intermediate	Warmwater	May-June	X	X	-	-	medium	medium	-	-	-	-	high	high	high	high	-
Percidae	Iowa Darter	<i>Etheostoma exile</i>	S5			Intermediate	Coolwater	April-June	X	-	-	-	medium	medium	-	-	-	high	high	high	high	-	-
Percidae	Rainbow Darter	<i>Etheostoma caeruleum</i>	S4			Intolerant	Coolwater	April-June	X	-	-	-	low	low	-	-	high	high	high	high	-	-	-
Percidae	Yellow Perch	<i>Perca flavescens</i>	S5			Intermediate	Coolwater	April-May	X	X	X	X	medium	medium	-	-	-	medium	high	high	medium	medium	-
Salmonidae	Brook Trout	<i>Salvelinus fontinalis</i>	S5			Intolerant	Coldwater	Sept-Nov	X	X	-	-	-	-	-	-	-	high	high	medium	low	-	-
Salmonidae	Rainbow Trout	<i>Oncorhynchus mykiss</i>	SNA			Intolerant	Coldwater	March-May	X	X	X	X	-	-	-	-	-	low	high	-	-	-	-
Umbridae	Central Mudminnow	<i>Umbra limi</i>	S5			Tolerant	Coolwater	April-May	X	-	-	-	high	high	-	-	-	-	-	high	-	-	-

Note:

A dash (-) indicated that the species was not reported to utilize a particular depth stratum, cover or substrate.

Tolerance refers to the ability of a species to adapt to environmental perturbations or anthropogenic stresses.

¹ Eakins, R. J. (2018). Ontario Freshwater Fishes Life History Database. Version 4.81. Online database. (<http://www.ontariofishes.ca>), accessed 26 July 2018

² Lane, J. A., Minns, C. K., & Portt, C. B. (1996). Spawning habitat characteristics of Great Lakes fishes (p. 47). Fisheries and Oceans Canada



Appendix F

Bird Species List



VEGETATION
COMMUNITY

CLASSIFICATION:

Woodland

LOCATION:

505 Yonge St

COORDINATES:

44.3626253,
-79.6570325

POINT COUNT
#:

1

PROJECT NUMBER:

9574-003

DATES:

June 21, 2021
June 28, 2021

PROJECT
MANAGER:

Andrea Hicks

FIELD STAFF:

Mackenzie Soden

FIELD SHEET – Bird Species List

June 21, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
American Redstart	<i>Setophaga ruticilla</i>	<i>Parulidae</i>			S5B	S
European Starling	<i>Sturnus vulgaris</i>	<i>Sturnidae</i>			SNA	H
Song Sparrow	<i>Melospiza melodia</i>	<i>Passerellidae</i>			S5B	S

June 28, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	<i>Corvus brachyrhynchos</i>	<i>Corvidae</i>			S5B	P
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
American Redstart	<i>Setophaga ruticilla</i>	<i>Parulidae</i>			S5B	T
Chipping Sparrow	<i>Spizella passerina</i>	<i>Passerellidae</i>			S5B	S
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	S
Northern Cardinal	<i>Cardinalis cardinalis</i>	<i>Cardinalidae</i>			S5	S
Northern Flicker	<i>Colaptes auratus</i>	<i>Picidae</i>			S4B	H
Song Sparrow	<i>Melospiza melodia</i>	<i>Passerellidae</i>			S5B	P

X = Species observed in its breeding season (no breeding evidence)

H = Species observed in its breeding season in suitable nesting habitat

S = Singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat

P = Pair observed in their breeding season in suitable nesting habitat

T = Permanent territory presumed through registration of territorial song on at least 2 days, a week apart, at the same place

D = Courtship or display between a male and a female or 2 males, including courtship feeding or copulation

V = Visiting probable nest site

X = Species observed in its breeding season (no breeding evidence)

CF = Adult carrying food for young

NE = Nest containing eggs

A = Agitated behaviour or anxiety calls of an adult

B = Brood patch on adult female or cloacal protuberance on adult male

N = Nest-building or excavation of nest hole

DD = Distraction display or injury feigning

NU = Used nest or egg shell found (occupied or laid within the period of study)

FY = Recently fledged young or downy young, including young incapable to sustain flight

AE = Adults leaving or entering nest site in circumstances indicating occupied nest

FS = Adult carrying faecal sac

NY = Nest with young seen or heard

Shaded cells indicate probable or confirmed breeding by the species within the vegetation community.

NOTES: Moderate noise and wind on June 21, 2021 survey. Low to moderate noise and no wind on June 20, 2021 survey.

VEGETATION COMMUNITY PHOTOS:

Taken June 21, 2021



Taken June 28, 2021





VEGETATION
COMMUNITY
CLASSIFICATION:

Woodland

LOCATION: 505 Yonge St

COORDINATES: 44.362473,
-79.6538953

POINT COUNT
#: 2

PROJECT NUMBER: 9574-003

DATES: June 21, 2021
June 28, 2021

PROJECT
MANAGER: Andrea Hicks

FIELD STAFF: Mackenzie Soden

FIELD SHEET – Bird Species List

June 21, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
American Redstart	<i>Setophaga ruticilla</i>	<i>Parulidae</i>			S5B	S
Black-capped Chickadee	<i>Poecile atricapillus</i>	<i>Paridae</i>			S5	H
Blue Jay	<i>Cyanocitta cristata</i>	<i>Corvidae</i>			S5	H
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	S
Northern Cardinal	<i>Cardinalis cardinalis</i>	<i>Cardinalidae</i>			S5	A
Song Sparrow	<i>Melospiza melodia</i>	<i>Passerellidae</i>			S5B	S

June 28, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	<i>Corvus brachyrhynchos</i>	<i>Corvidae</i>			S5B	P
Common Grackle	<i>Quiscalus quiscula</i>	<i>Icteridae</i>			S5B	H
Northern Cardinal	<i>Cardinalis cardinalis</i>	<i>Cardinalidae</i>			S5	S
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	<i>Icteridae</i>			S4	S
Rock Pigeon	<i>Columba livia</i>	<i>Columbidae</i>			SNA	X
Song Sparrow	<i>Melospiza melodia</i>	<i>Passerellidae</i>			S5B	T

X = Species observed in its breeding season (no breeding evidence)

H = Species observed in its breeding season in suitable nesting habitat

S = Singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat

P = Pair observed in their breeding season in suitable nesting habitat

T = Permanent territory presumed through registration of territorial song on at least 2 days, a week apart, at the same place

D = Courtship or display between a male and a female or 2 males, including courtship feeding or copulation

V = Visiting probable nest site

X = Species observed in its breeding season (no breeding evidence)

CF = Adult carrying food for young

NE = Nest containing eggs

A = Agitated behaviour or anxiety calls of an adult

B = Brood patch on adult female or cloacal protuberance on adult male

N = Nest-building or excavation of nest hole

DD = Distraction display or injury feigning

NU = Used nest or egg shell found (occupied or laid within the period of study)

FY = Recently fledged young or downy young, including young incapable to sustain flight

AE = Adults leaving or entering nest site in circumstances indicating occupied nest

FS = Adult carrying faecal sac

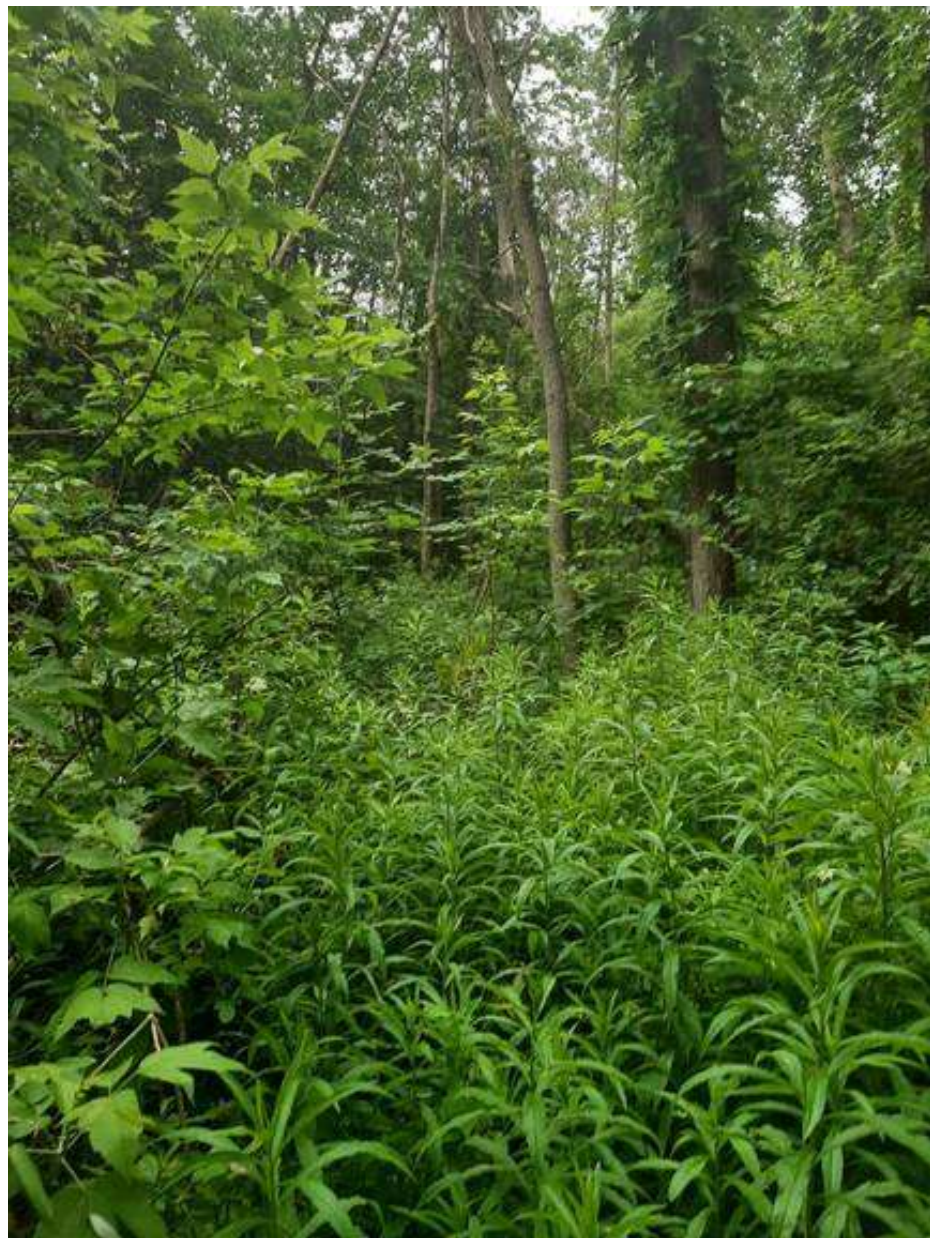
NY = Nest with young seen or heard

Shaded cells indicate probable or confirmed breeding by the species within the vegetation community.

NOTES: Moderate noise and wind during June 21, 2021 survey. Low noise and no wind on June 28, 2021.

VEGETATION COMMUNITY PHOTOS:

Taken on June 21, 2021



Taken on June 28, 2021





Appendix G

Species Of Conservation Concern Screening



APPENDIX: Species of Conservation Concern - Simcoe County

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Birds								
Bald Eagle	<i>Haliaeetus leucocephalus</i>	No Status	SC	S2N,S4B	The Bald Eagle is a bird of prey with a white head, neck and tail, a massive bright yellow beak, powerful legs, and a wingspan of over 2 m. It nests in a variety of habitats and forest types, almost always near a major lake or river where they do most of their hunting. These nests are usually on islands in freshwater lakes or in large trees such as the pine and poplar. During the winter, they may also be found near open bodies of water that do not freeze (1).	No	Known to occur in the general area	No further consideration required
Bank Swallow	<i>Riparia riparia</i>	THR	THR	S4B	The Bank Swallow is a small songbird of around 12 cm long with a distinctive dark breast band, that flies with quick and erratic wingbeats (1). It nests in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. This can include banks of rivers and lakes, bluffs, active sand and gravel pits, road cuts and stockpiles of soils. However, they prefer sand-silt substrates for excavating their nest burrows. They often use large wetlands as communal nocturnal roosts post-breeding or during wintering periods (2).	No	Known to occur in the general area	No further consideration required
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	S4B	The Barn Swallow is a mid-sized songbird with steel-blue backs and wings, glossy in males, and a line of white spots across its upper tail. It lives in a variety of open habitats for foraging, such as grassy fields, pastures, certain agricultural crops, shorelines, cottage areas, wetlands, or subarctic tundra (2). They prefer to nest within human made structures such as barns, bridges, and culverts. Barn Swallow nests are cup-shaped and made of mud, typically attached to horizontal beams or vertical walls underneath an overhang (1).	No	Known to occur in the general area	No further consideration required
Black Tern	<i>Chlidonias niger</i>	No Status	SC	S3B	The Black Tern is a small waterbird with a forked tail, straight pointed bill, slender shape, and black head during breeding season. It builds floating nests in loose colonies in shallow marshes, with a preference for cattails. They breed primarily in the marshes along the edges of the Great Lakes, but may also use wetlands further north if suitable (1).	No	Known to occur in the general area	No further consideration required
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	S4B	The Bobolink is a mid-sized songbird of tan colour with black stripes, except for males during summer breeding season who are black with a white back and yellow collar. It prefers tall, grassy meadows, hayfields and some croplands, and feeds (largely on insects) on the ground in dense grasses (1). It tends to nest in forage crops: hayfields and pastures dominated by species including clover, bluegrass, and broadleaf plants (2).	No	Known to occur in the general area	No further consideration required
Canada Warbler	<i>Cardellina canadensis</i>	THR	SC	S4B	The Canada Warbler is a small songbird with bright yellow underparts and bluish-grey back and tail (1). It can be found in a variety of forest types, but is most abundant in moist, mixed forests with a well-developed, dense shrub layer. Nests are usually located on or near the ground on mossy logs, and along stream banks (3).	Yes: on-site and adjacent lands	Confirmed absent through targeted surveys	No further consideration required



APPENDIX: Species of Conservation Concern - Simcoe County

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Cerulean Warbler	<i>Setophaga cerulea</i>	END	THR	S3B	The Cerulean Warbler, a small songbird, is blue-green with white eyebrows and two prominent white wing bars (1). It requires relatively large tracts of mature deciduous forest (>100 ha), and nests in older, second-growth deciduous forests. During breeding season, it is found in relatively large tracts of mature deciduous forests that feature large, tall trees and an open understorey (4).	No	Known to occur in the general area	No further consideration required
Chimney Swift	<i>Chaetura pelagica</i>	THR	THR	S4B,S4N	The Chimney Swift is a small bird, between 12 and 14 cm, with a brown, cigar-shaped body, slender wings, and an erratic flight pattern. Prior to settlement, the Chimney Swift would mainly nest in cave walls and hollow trees. Now, it is found mostly near urban and suburban areas where the presence of chimneys or other manmade structures provide nesting and roosting habitat. They also tend to stay in habitat close to the water (1).	No	Known to occur in the general area	No further consideration required
Common Nighthawk	<i>Chordeiles minor</i>	THR	SC	S4B	The Common Nighthawk is a medium-sized bird with long, pointed wings, a long tail with a notch, and large eyes. Its plumage of dark brown with black and white specks blends with its roost site. It is typically found in open areas such as gravel beaches, rock outcrops and burned woodlands, that have little to no ground vegetation. This species can also be found in highly disturbed locations such as clear cuts, mine tailing areas, cultivated fields, urban parks, gravel roads, and orchards (1).	No	Known to occur in the general area	No further consideration required
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR	S4B	The Eastern Meadowlark is a medium-sized migratory songbird with a bright yellow throat and belly, a black V shape on its chest, and a pointed bill. It prefers pastures and hayfields, but is also found to breed in orchards, shrubby fields, human-use areas such as airports and roadsides, or other open areas. The Eastern Meadowlark can nest from early May to mid-August, in nests that are built on the ground and well-camouflaged with a roof woven from grasses (1).	No	Known to occur in the general area	No further consideration required
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	THR	THR	S4B	The Eastern Whip-poor-will is a medium-sized bird with mottled brown and grey feathers to blend in with its surroundings, a large flattened head, and small bill. They are usually found in areas with a mix of open and forested areas such as patchy forests with clearings, forests that are regenerating after major disturbances, savannahs, open woodlands or openings in more mature forests. Breeding habitat is dependent on forest structure rather than composition, although common tree associations are pine and oak, and it nests directly on the forest floor (2). The species prefers to nest in semi-open or patchy forests with clearings as it forages in open areas and uses forested areas for roosting (1).	No	Known to occur in the general area	No further consideration required
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	S4B	The Eastern Wood-pewee is a species of 'flycatcher', a bird that eats flying insects. It grows to approximately 15 cm, has greyish-olive upper parts and pale bars on its wings. This species lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It prefers intermediate-age forest stands with little understory vegetation (1). It typically creates nests on tree branches 2-12 m in height (2).	Yes: on-site and adjacent lands	Confirmed absent through targeted surveys	No further consideration required



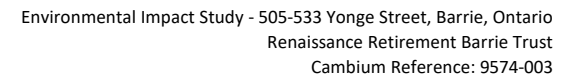
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COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	No Status	SC	S4B	The Evening Grosbeak is a large songbird with a thick greenish bill. It is a social bird that is often found in flocks, particularly during the winter months. Their preferred habitat is thick coniferous forest. During their breeding season, they are generally found in open, mature mixed forests dominated by Firs, White Spruce, or Trembling Aspen (1).	No	Known to occur in the general area	No further consideration required
Golden Winged Warbler	<i>Vermivora chrysoptera</i>	THR	SC	S4B	The Golden-winged Warbler is a small songbird with distinctive yellow wing patches and patches behind their eyes. It inhabits early successional habitat of old fields and favour areas where trees are spread out or forest edges to use for perching, singing, and searching for food. They seem to prefer regeneration zones with young shrub growth, surrounded by mature forest, locations that have recently been disturbed, such as field edges, hydro or utility right-of-ways, or logged areas for their breeding sites; often frequenting clusters of herbaceous plants and low bushes (1).	No	Known to occur in the general area	No further consideration required
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	SC	SC	S4B	The Grasshopper Sparrow is a small songbird with a streaked back, a white stripe down the center of its crown, a flattish head, and a conical beak. It inhabits open grasslands and prairies with well-drained soil, preferring areas that are sparsely vegetated. It will also nest in hayfields and pastures, as well as alvars and occasionally grain crops such as barley (1).	No	Known to occur in the general area	No further consideration required
King Rail	<i>Rallus elegans</i>	END	END	S2B	The King Rail is a large bird, standing at around 40 cm tall, with a long, curved bill, orange chest and neck, and black sides with vertical white bars. This species prefers densely vegetated freshwater marshes with open shallow water and shrub thicket areas. Current records for Ontario suggest that these birds prefer sites within coastal marshes of the Great Lakes. Most breeding pairs left in Ontario are found in wetlands bordering Lake St Clair or coastal marshes along Lakes Erie and Ontario (1).	No	Known to occur in the general area	No further consideration required
Least Bittern	<i>Ixobrychus exilis</i>	THR	THR	S4B	The Least Bittern is a small member of the heron family, reaching around 30 cm in length. It has brown and beige plumage with chestnut patches on its wings (1). The species nests in marshes (> 5 - 10 ha) and swamps dominated by emergent vegetation, preferably cattails, interspersed with patches of woody vegetation and open water. They require dense vegetation and open water with stable levels within 10 m for nesting, and access to clear, open water for foraging (4).	No	Known to occur in the general area	No further consideration required
Loggerhead Shrike	<i>Lanius ludovicianus</i>	END	END	S2B	The Loggerhead Shrike is a small bird with a black, hooked bill, grey crown, and white throat and chest. This species has specific habitat requirements that are dependent on active livestock grazing, or grassland areas that have naturally short grass cover (i.e. alvar communities). They also require spiny, multi-branched shrubs, or barbed fencing, to catch prey. They prefer grassland habitats that have sporadic occurrences of low trees and shrubs; particularly hawthorn species, which are used as part of their feeding behaviour (1).	No	Known to occur in the general area	No further consideration required



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COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Olive-sided Flycatcher	<i>Contopus cooperi</i>	THR	SC	S4B	The Olive-sided Flycatcher is a medium-sized songbird with olive colouring, often seen perching on top of tall trees waiting to catch their prey. It prefers open areas along natural mature forest edges, forest edges near natural openings such as rivers or swamps, human-made openings, or burned forest openings with numbers of dead trees. Breeding habitat usually consists of coniferous or mixed forests adjacent to rivers or wetlands, in Ontario often nesting in White and Black Spruce, Jack Pine, and Balsam Fir (1).	Yes: on-site and adjacent lands	Confirmed absent through targeted surveys	No further consideration required
Peregrine Falcon	<i>Falco peregrinus</i>	SC	SC	S3B	The Peregrine Falcon is a bird of prey with a slate blue back, cream-coloured chest with dark markings, and pointed wings spanning around 1 m. It also has bright yellow feet and legs. This species can be found nesting on tall, steep cliff ledges close to large bodies of water. They prefer open habitats such as wetlands, tundra, savannah, sea coasts and mountain meadows for hunting, but may also be found above open forests. This species has also adapted well to living and nesting in urban areas, and has been documented using the ledges of tall buildings and other tall man-made structures for perches and nesting (1).	No	Known to occur in the general area	No further consideration required
Piping plover	<i>Charadrius melodus</i>	END	END	S1B	The Piping Plover is a small shorebird with light colouring, a stubby orange bill and orange legs. This species almost exclusively nests on dry sandy or gravelly beaches above the high-water mark to avoid waves. It can be found pecking the sand, searching for small pools of water for insects and small crustaceans to consume. Although not particularly common in Ontario, it is found along the shores of the Great Lakes, and in the Lake of the Woods in northwestern Ontario (1).	No	Known to occur in the general area	No further consideration required
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	THR	SC	S4B	The Red-headed Woodpecker is a mid-sized bird, at around 20 cm long, with a vivid red head, neck and breast as well a strong bill. The species can be found in open woodland and woodland edges, often near man-made landscapes such as parks, golf courses and cemeteries. These areas must contain a large number of dead trees for perching and nesting (1).	No	Known to occur in the general area	No further consideration required
Short-eared owl	<i>Asio flammeus</i>	SC	SC	S2N,S4B	The Short-eared Owl has a large round head with small tufts of feathers, long wings, a short tail, and cryptic colouring of brown streaks. This species is found in scattered pockets across the province where suitable open habitat, including grasslands, tundra, peat bogs and marsh, can be found in sufficient quantities. Adults build nests on the ground in grassy areas and occasionally agricultural fields (1). The main factor influencing their choice in habitat is believed to be an abundance of their food source, primarily rodents and other small mammals (2).	No	Known to occur in the general area	No further consideration required



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Wood Thrush	<i>Hylocichla mustelina</i>	THR	SC	S4B	The Wood Thrush is a medium-sized songbird of around 20 cm with rusty brown coloured upper parts and white underparts with large dark spots. It breeds in deciduous and mixed forests with moderate understories, shade and abundant leaf litter where it forages for food, including larval and adult insects as well as plant material. They prefer moist stands of trees with well-developed undergrowth and tall trees for perches (1).	Yes: on-site and adjacent lands	Confirmed absent through targeted surveys	No further consideration required
Yellow Rail	<i>Coturnicops noveboracensis</i>	SC	SC	S4B	The Yellow Rail is a small, quail-like marsh bird with a short yellow or black bill, short tail, with yellowish and black streaks on its back and white wing patches. This species is mainly found in the Hudson Bay Lowlands region, and is only found in localized marshes in southern Ontario. It is a secretive bird that lives deep within the reeds, sedges, and marshes of shallow wetlands which nest on the ground in areas that have an overlying mat of dry vegetation that can be used for nest building (1).	No	Known to occur in the general area	No further consideration required
Fish								
American Eel	<i>Anguilla rostrata</i>	No Status	END	S1?	The American Eel is a long, slender bodied fish, with one long fin extending down the back and around the tail, and two small pectoral fins. It has thick lips, and a protruding lower jaw that extends out above the upper jaw. At the juvenile stage, they swim up the St. Lawrence River to reach Lake Ontario and connected tributaries where they will remain for 8 to 23 years before migrating back to their spawning grounds. In Ontario, the American eel prefers mud, sand or gravel substrates during the juvenile stage when they reside primarily in the benthic zone of waterbodies. More mature eels are able to thrive in most environments provided there is available cover during daylight hours, and the habitat is accessible (2).	No	Known to occur in the general area	No further consideration required
Lake Sturgeon	<i>Acipenser fulvescens</i>	No Status	END	S2	The Lake Sturgeon, a large freshwater fish, has an extended snout with four whisker-like organs hanging near the mouth and is dark to light brown or grey on its back and sides with a lighter belly. In Ontario, this fish is found in the rivers of the Hudson Bay Basin, the Great Lakes basin, and their connecting waterways. Lake Sturgeon’s live almost exclusively in freshwater lakes and rivers with soft bottoms of mud, sand or gravel and are usually found at depths of 5 to 20 m. They spawn in relatively shallow, fast-flowing water or if available deeper water habitat as well (1).	No	Known to occur in the general area	No further consideration required
Herptiles								



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Blanding's Turtle	<i>Emydoidea blandingii</i>	THR	THR	S3	Blanding's Turtles are identifiable by their bright yellow throat and chin and domed shell. They spend the majority of their life cycle in the aquatic environment, usually in large wetlands or shallow lakes with high densities of water plants (1). These turtles prefer shallow, nutrient rich water with organic sediment and dense vegetation. They use terrestrial sites for travel between habitat patches and to lay clutches of eggs, often going hundreds of meters from their nearest water body. Blanding's Turtles nest in dry coniferous and mixed forest habitats, as well as fields and roadsides (2). From late October until the end of April, they hibernate in the mud at the bottom of permanent water bodies (1).	No	Known to occur in the general area	Consideration required under the ESA
Eastern Musk Turtle	<i>Sternotherus odoratus</i>	SC	SC	S3	The Eastern Musk Turtle is small with a narrow carapace, a dark brown body and two light stripes on each side of their head (5). It is a small freshwater turtle found primarily in slow moving water bodies with abundant emergent vegetation and mucky bottoms along the southern edge of the Canadian Shield within which they burrow into overwinter. Nesting sites vary, but must be close to the water and exposed to direct sunlight (1).	No	Known to occur in the general area	No further consideration required
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	SC	-	S4	The Midland Painted Turtle has a olive to black carapace with red or dark orange markings on the marginal scutes, as well as red and yellow stripes on the head and neck. The species uses a variety of waterbodies including, ponds, marshes, lakes and slow-moving creeks with a soft bottom and an abundance of basking sites and aquatic vegetation. This species usually hibernates on the bottom of waterbodies (5).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential significant wildlife habitat on-site
Northern Map Turtle	<i>Graptemys geographica</i>	SC	SC	S3	The Northern Map Turtle is a medium sized turtle identified by its carapace's map contour-like patterning. It lives in larger lakes and rivers, requiring high water quality to support their primary prey species: molluscs. This species can often be seen in large groups basking together on rocks and logs. In the winter, the Northern Map Turtle can be found hibernating on the bottom of slow-moving rivers (1).	No	Known to occur in the general area	No further consideration required
Snapping Turtle	<i>Chelydra serpentina</i>	SC	SC	S3	The Snapping Turtle, with its large serrated carapace, small plastron, and spiked tail, is Canada's largest freshwater turtle (5). It spends the majority of its life in water, preferring shallow water with soft mud and leaf litter, and will travel upland to gravel or sandy embankments, roadsides, along railway lines or beaches to lay their eggs (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential significant wildlife habitat on-site
Spotted Turtle	<i>Clemmys guttata</i>	END	END	S2	The Spotted Turtle is named after the distinct yellow spots on its carapace. The species is semi-aquatic and prefers ponds, marshes, bogs and even ditches with slow-moving, unpolluted water and an abundant supply of aquatic vegetation. This species usually hibernates in wetlands or seasonally wet areas with structures such as overhanging banks, hummocks, tree roots, or aquatic animal burrows (1).	No	Known to occur in the general area	No further consideration required



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Wood Turtle	<i>Glyptemys insculpta</i>	THR	END	S2	The Wood Turtle has orange coloured front legs, neck and chin and a sculpted carapace with raised, pyramidal scutes (5). They prefer clear rivers and streams that have moderate current, and sandy or gravelly substrates. This species spends more time on land than other turtle species including in meadows, swamps and fields. Wooded areas are an essential habitat component, and the species uses aquatic habitats for hibernation and mating. Nesting occurs in areas with sandy soil and abundant light (1).	No	Known to occur in the general area	No further consideration required
Eastern Fox Snake (Georgian Bay GLSL Population)	<i>Pantherophis gloydi</i>	END	THR	S3	The Eastern Foxsnake has a rusty orange head and a golden-brown body with dark blotches. The Georgian Bay population predominantly uses open habitats along shorelines (e.g., coastal rock barrens and meadow marshes) as habitat during the active season. The foxsnakes inhabiting this coastline do not venture far inland, restricting the majority of their activity to within 150 m of the water (4). The females require rotten logs, stumps, compost or decaying leaf piles for incubating their eggs (5).	No	Known to occur in the general area	No further consideration required
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	THR	THR	S3	The Eastern Hog-nosed Snake can be a variety of colours and patterns so is most easily identified by its flattened, upturned nose. They prefer sandy well-drained habitats such as beaches and dry forests because they lay their eggs, hibernate and burrow in these areas. The main diet of this snake is toads and frogs, so they usually stay close to water including marshes and swamps, where they have an increased chance of finding their preferred prey (1).	No	Known to occur in the general area	No further consideration required
Eastern Milksnake	<i>Lampropeltis triangulum</i>	SC	NAR	S4	The Eastern Milksnake's colouration is grey or tan with reddish alternating blotches outlines in black along its back and sides (5). It has recently been delisted from being a species at risk in Ontario (1). This species tends to use open habitats such as rocky outcrops, fields and forest edges. The preferred prey of milksnakes are mice, small rodents, and ground nesting birds which are amply found in and surrounding agricultural outbuildings. The milksnake is secretive and is not likely to be encountered during the day or at night while hunting (5).	No	Known to occur in the general area	No further consideration required
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	SC	SC	S4	The Eastern Ribbonsnake is slender with three bright yellow stripes running down its back and sides and a white crescent in front of each eye. This snake is usually found close to water as they are strong swimmers, often fleeing predators by diving into shallow water. It prefers wetland habitats where its prey species, frogs and small fish, are abundant. Over winter, they congregate in underground burrows or rock crevices to hibernate (1).	No	Known to occur in the general area	No further consideration required
Massasauga Rattlesnake (Great Lakes - St. Lawrence population)	<i>Sistrurus catenatus</i>	THR	THR	S3	The Massasauga, Ontario's venomous snake, can be identified by its rattle, vertical pupils, and triangular head. It inhabits a range of different habitats throughout Ontario, including tall grass prairies, marshes, bogs, shorelines, forests, and alvars. Within these habitats they require open areas to warm themselves in the sun (1).	No	Known to occur in the general area	No further consideration required



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Common Five-lined Skink (Southern Shield Population)	<i>Plestiodon fasciatus</i>	SC	SC	S3	The Common Five-lined Skink is Ontario's only lizard species. Its Southern Shield population can be found underneath rocks on open bedrock in forests and like to bask on sunny rocks and logs. They hibernate in crevices among rocks or buried in the soil (1). They hibernate in groups under rocks and tree stumps or in rotting wood (5).	No	Known to occur in the general area	No further consideration required
Western Chorus Frog	<i>Pseudacris triseriata</i>	THR	-	S3	The Western Chorus Frog is small with a dark stripe running through its eye and a light stripe underneath (5). It is primarily a lowland terrestrial species that requires access to terrestrial and aquatic habitats in close proximity to one another. Relying on marshes and wooded wetlands adjacent to forested habitats, this species also requires isolated, predator free pools for breeding. Temporary pools, such as vernal pools in wooded areas, are preferred. This species hibernates terrestrially in a variety of environments, including leaf litter, wood debris, and vacant animal burrows (2).	No	Known to occur in the general area	No further consideration required
Invertebrates								
Monarch Butterfly	<i>Danaus plexippus</i>	SC	SC	S2N,S4B	The Monarch is an orange and black butterfly with small white spots and a wingspan of around 10 cm. It relies on milkweed plants as a food source for growing caterpillars, but the adult butterflies forage in diverse habitats for nectar from wildflowers (1).	No	Known to occur in the general area	No further consideration required
West Virginia White	<i>Pieris virginiensis</i>	No Status	SC	S3	The West Virginia White is a small, dingy white butterfly. This species is found in moist deciduous woods, and requires a supply of toothwort, a small, spring-blooming plant, which provides the only source of food for its larvae. The West Virginia White is found mostly in the central and southern parts of Ontario, but its range extends north to Manitoulin and St. Joseph islands (1).	No	Known to occur in the general area	No further consideration required
Mammals								
Tri-colored Bat	<i>Perimyotis subflavus</i>	END	END	S3?	The Tri-colored Bat is small, with pale brown with orange-red forearms, muzzle, and ears. It is named for the black, yellow, and brown hairs on its back. It is considered rare in this region of Ontario which is at the northernmost limit of the natural range. These bats prefer to nest in foliage, tree cavities and woodpecker holes, but are occasionally found in buildings; though this is not their preferred habitat. Winter hibernation takes place in caves, mines and deep crevices. Tri-colored Bats prefer an open forest habitat type in proximity to water (6).	No	Confirmed absent through targeted surveys	Consideration required under the ESA
Eastern Small-footed Myotis	<i>Myotis leibii</i>	No Status	END	S2S3	The Eastern Small-footed Myotis has fur with black roots and shiny brown tips as well as very small feet. In the spring and summer, the Eastern Small-footed Myotis will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. They change their roosting locations daily and hunt at night for insects. They hibernate in winter, often in caves and abandoned mines choosing colder and drier sites than other similar bats (1).	No	Confirmed absent through targeted surveys	Consideration required under the ESA



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Little Brown Myotis	<i>Myotis lucifugus</i>	END	END	S4	The Little Brown Myotis has glossy brown fur and a fleshy projection covering the entrance to its ears. This species roosts in trees and buildings, often selecting attics, abandoned buildings and barns for summer colonies where they can raise their young. Little Brown Bats hibernate from October/November to March/April, most often in caves or abandoned mines that are humid and remain above freezing (1).	No	Confirmed absent through targeted surveys	Consideration required under the ESA
Northern Myotis	<i>Myotis septentrionalis</i>	END	END	S3	The Northern Myotis has dull yellow-brown fur with pale bellies and long, rounded ears. This species is found in boreal forests, roosting under loose bark and in the cavities of trees. These bats hibernate from October/November to March/April, most often in caves or abandoned mines (1).	No	Known to occur in the general area	No further consideration required
Algonquin Wolf	<i>Canis lycaon</i>	SC	THR	S4	Formerly called the Eastern Wolf, this canine was recently renamed the Algonquin Wolf. In the southern portion of the province, this species prefers deciduous and mixed forest landscapes while their northern range include mixed and coniferous forests. It is most prevalent in areas with abundant prey species which include Beaver, White-tailed Deer and Moose. Dens sites are usually found in coniferous forests with easily excavated soil types like sand and close to a permanent water source (1).	No	Known to occur in the general area	No further consideration required
Trees, plants, fungi and lichens								
American Ginseng	<i>Panax quinquefolius</i>	END	END	S2	American Ginseng is a perennial plant which grows up to 60 centimetres in height. The leaves typically have five leaflets arranged in a whorl at the end of the leaf stem. The root looks like a gnarly parsnip. The flowers are an inconspicuous green-white in colour, but the berries are bright red and arranged in a cluster. In Ontario, the American Ginseng typically grows in rich, moist, and mature deciduous woods dominated by Sugar Maple, White Ash, and American Basswood. It typically grows in deep, nutrient rich soil over limestone or marble bedrock (1).	No	Known to occur in the general area	No further consideration required
American Hart's-tongue Fern	<i>Asplenium scolopendrium</i>	SC	SC		American Hart's Tongue Fern is a perennial evergreen fern with fronds growing from a short underground stem. Its blades are strap-shaped with a heart-shaped base and pointed tip. The species grows on calcareous rocks on slopes in deciduous forests, preferring deep shade. In Ontario, most occurrences are in maple-beech forests (1).	No	Known to occur in the general area	No further consideration required
Broad Beech Fern	<i>Phegopteris hexagonoptera</i>	SC	SC	S3	The Broad Beech Fern can grow to a height of 50 cm or more and has a creeping, scaly root (2). The fern has large divided leaves called fronds which grow from 25 to 75 cm long and triangular leaf blades. The Broad Beech Fern prefers rich, moist soils in deciduous forests, usually in full shade and often dominated by Maple and Beech trees. In Ontario, it is found in southern Muskoka, along Lake Erie, and in the eastern Lake Ontario - St Lawrence River region (1).	No	Known to occur in the general area	No further consideration required



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Butternut	<i>Juglans cinerea</i>	END	END	S2?	The Butternut is a medium sized tree reaching 30 m in height. It has large compound leaves with 11 to 17 leaflets. The fruit is oval, fuzzy and sticky. In Ontario, the Butternut prefers moist, well-drained soil, often along streams, or occasionally well-drained gravel sites. It grows alone or in small groups in deciduous forests (1).	Yes: on-site and adjacent lands	Confirmed absent through targeted surveys	No further consideration required
Eastern Prairie Fringed-orchid	<i>Platanthera leucophaea</i>	END	END	S2	The Eastern Prairie Fringed-Orchid has distinctive fringed white flowers with a deep "nectar spur" containing nectar and a flat, fringed "lip" serving as a platform for pollinating insects. It may lie dormant for years before flowering. It can be found in areas of tallgrass prairie or fen throughout the province and in some tamarack swamps of the Bruce Peninsula and Ottawa Area (1).	No	Known to occur in the general area	No further consideration required
Purple Twayblade	<i>Liparis liliifolia</i>	THR	THR	S2	The Purple Twayblade is a small orchid with two broad, shiny leaves at the base of the plant and a single stem from which mauve-purple flowers cluster. It can be found in a variety of habitats including open woodlands, mixed deciduous forests, shrub thickets, deciduous swamps, and coniferous plantations. It requires partial, but can not tolerate full, shade and therefore depends on natural disturbances to keep its habitat relatively open (1).	Yes: on-site and adjacent lands	Confirmed absent through targeted surveys	No further consideration required

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