

Environmental Impact Study - 50 Welham Road, City of Barrie, Ontario



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Prepared for:
TLM Holdings Inc.

Cambium Reference No.: 13008-001

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1.0 Introduction

Cambium Inc. (Cambium) was retained by TLM Holdings Inc. to conduct an Environmental Impact Study for the property located at 50 Welham Road, in the City of Barrie, Ontario (Figure 1). The proposed development includes the construction of an industrial subdivision requiring a Draft Plan of Subdivision application. Given the geographic extent and scale of the proposed development, the entire property will be considered the Site for this report.

The following Environmental Impact Study (the Study) serves to assess potential negative impacts to natural heritage features identified during the preliminary development review process, as required by the City of Barrie Official Plan, the Provincial Policy Statement, 2020 (PPS), and the Lake Simcoe Protection Plan (LSPP). The Site contains or is adjacent to (within 120 m) the following natural heritage and/or hydrologic features: Whiskey Creek, woodlands, candidate significant wildlife and potential species at risk habitat. The Site is also located within Ecoregion 6E-6 of Ontario (Crins, Gray, Uhlig, & Wester, 2009) and is within the City of Barrie's Settlement Area.

The Site is within the jurisdiction of the Lake Simcoe Region Conservation Authority (LSRCA) and their regulated area does partially overlaps the southwestern boundary of the Site. 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).

This Study has been prepared to meet application submission standards for the proposed development of the Site, and includes: the results of the background review, a description of



methods used to collect site specific natural heritage information, and a summary of field investigations conducted on the Site. Information has been compiled to characterize the existing form and function of natural heritage features on and adjacent to the Site, and provide an evaluation of the significance and sensitivity of those features. Furthermore, an assessment of potential impacts to these features in relation to the proposed development is provided. Data was interpreted in accordance with provincial and municipal policies and regulations to determine potential constraints to development, to guide the decision-making process and address approval authority requirements.

1.1 Terms of Reference

The Lake Simcoe Region Conservation Authority (LSRCA) was contacted directly to confirm the Terms of Reference for the subject study. A record of Cambium's correspondence with LSRCA staff (Kate Lillie, Natural Heritage Ecologist) is included in Appendix A.

1.2 Proposed Development and Conceptual Site Plan

The Site is irregularly shaped (approximately 26 ha), located at the north end of Welham Road in Barrie. The subject lands are located in an existing, well-established commercial/industrial area of the City. A small portion of the Site along the southern boundary is currently being used for large vehicle storage by the adjacent commercial landowner. The remainder of the Site is currently vacant and routinely used recreationally by local dog-walkers and off-road vehicle users. An extensive network of trails is found across the Site. Adjacent land uses include commercial/industrial, and residential. Additionally, the lands to the north and west are occupied by Lackies Bush, a forested area associated with the Whiskey Creek corridor.

The proposed development consists of a 20-lot industrial subdivision, interior road, and associated stormwater management facilities. A copy of current Draft Plan is provided in Appendix B.



2.0 Natural Heritage Policy Context

The evaluation of the form and function of natural heritage features present on, and adjacent to, the Site was undertaken to meet the requirements of the following legislation, plans and policies:

- Provincial Policy Statement, 2020 (PPS)
- Growth Plan for the Greater Golden Horseshoe, 2020 (GPGGH)
- Lake Simcoe Protection Plan, 2009 (LSPP)
- Conservation Authority Regulation and Planning and Policy Regulations Manual
- City of Barrie Official Plan and Zoning By-law 2009-141
- Endangered Species Act, 2007 (ESA)
- Fisheries Act
- Species at Risk Act (SARA)
- Migratory Birds Convention Act, 1994 (MBCA)

This Study includes an assessment of conformity of the proposed development with relevant natural heritage policies. A summary of policy conformity is included in Section 6.0.

2.1 Provincial Policy Statement, 2020

The PPS provides direction on matters of provincial interest related to land use planning and development. Section 2.1 of the PPS (Ministry of Municipal Affairs and Housing, 2020) protects the form and function of eight types of significant natural heritage features, which include:

- significant wetlands
- significant coastal wetlands
- significant woodlands (limited to Ecoregions 6E and 7E)
- significant valleylands
- significant wildlife habitat (SWH)
- significant areas of natural and scientific interest (ANSI)
- fish habitat



- habitat of endangered and threatened species

Given their significance, development and site alteration are prohibited within provincially significant wetlands (PSW) in Ecoregions 5E, 6E, and 7E and within significant coastal wetlands. Development and site alteration in fish habitat and the habitat of endangered and threatened species shall only be permitted in accordance with provincial and federal requirements. Development and site alteration within other natural heritage features and on lands adjacent to all natural heritage features may be permitted if it is demonstrated that there will be no negative impacts on the feature or its ecological function. The PPS defines “development” as the creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the Planning Act. “Site alteration” means activities such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of a site.

Section 2.2 of the PPS protects the quality and quantity of water, including the form and 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 Growth Plan for the Greater Golden Horseshoe, 2020

The Greater Golden Horseshoe is one of the most dynamic and fast-growing regions in North America. To address the challenges of increased development within the area, the Growth Plan for the Greater Golden Horseshoe, 2020 (GPGGH) builds on the PPS “*to establish a unique land use planning framework for the Greater Golden Horseshoe that supports achievement of complete communities, a thriving economy, a clean and healthy environment, and social equity*” (Ministry of Municipal Affairs and Housing, 2020). In general, the GPGGH seeks to preserve agricultural lands, water resources, and natural areas by directing growth to settlement areas as defined in municipal Official Plans.

The GPGGH contains policies regarding a provincial Natural Heritage System (NHS), key hydrologic features (KHF), key hydrologic areas (KHAs), and key natural heritage features (KNHFs) (Table 1). Policies that reference the provincial NHS apply once the municipal Official Plan has incorporated the provincial NHS into their schedules; until that time, outside of settlement areas, the policies that reference the NHS will apply to the natural heritage systems identified in Official Plans that were approved and in effect as of July 1, 2017, to the extent that such systems existed at that time. The subject Site is located within a designated Settlement Area, outside of municipal natural heritage systems; therefore, the “no negative impact” policy test of the PPS applies.

Table 1 Protected Features of the GPGGH

Key Hydrologic Features	Key Natural Heritage Features	
Permanent Streams	Habitat of Endangered and Threatened Species	Significant Wildlife Habitat
Intermittent Streams	Fish Habitat	Sand Barrens
Inland Lakes and their Littoral Zones	Wetlands	Savannahs
Seepage Areas and Springs	Life Science Areas of Natural and Scientific Interest (ANSI)	Tallgrass Prairies
Wetlands	Significant Valleylands	Alvars
	Significant Woodlands	

2.3 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. The LSPP includes policies with respect to the Lake Simcoe shoreline, key natural heritage features (KNHF), and key hydrologic features (KHF). KNHF include wetlands, significant woodlands, significant valleylands, and natural areas abutting Lake Simcoe. KHF include wetlands, permanent and intermittent streams, and lakes other than Simcoe.



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.*

This Study is intended to address the requirements of a Natural Heritage Evaluation (NHE) under the LSPP.

2.4 Official Plan and Zoning By-Law

According to the City of Barrie Official Plan, Schedule A, Land Use, the Site is primarily designated as 'General Industrial' with lands along the northern and western boundary designated 'Environmental Protection Area'. Schedule H (Natural Heritage Resources) identifies the Site as containing areas with the following Natural Heritage Resource classifications (definitions are provided below), Level 1, Level 1 with Existing Development Designation Subject to 3.5.2.4 (d), and Level 3, as shown on Figure 2.

Sections 3.5.3.4(a)(ii) and 3.5.2.4 (d) of the Official Plan states that an EIS is required for any development or site alteration within 120 metres of an area identified as Level 1 on Schedule H.



Level 1

Level 1 resources are critical components of the Natural Heritage Resource network. No development shall be permitted within these areas:

- Provincially Significant Wetlands;
- Non-provincially significant wetlands greater than 0.5 hectares;
- Significant woodlands greater than 10 hectares;
- Significant habitat of endangered and threatened species;
- Watercourses, minimum vegetation protection zones and connectivity linkages;
- Lands through the site specific planning and development process identified as Environmental Protection

Section 3.5.2.4 (a) i) of the City of Barrie Official Plan also states:

- Environmental Protection Area policy (4.7.2.2) would apply to all Level 1 resources;
- The City will strive to designate all properties identified as having Level 1 Natural Heritage Resources as Environmental Protection; and,
- An EIS will be required for any development or site alteration within 120 metres of an area identified as Level 1 on Schedule H.

Section 3.5.2.4 (d) of the City of Barrie Official Plan states that, notwithstanding the land use limitations applicable to properties identified as Level 1 in Section 3.5.2.4 (a) i), where an existing designation permits other forms of development, such development may proceed subject to the policies of Level 2 in Section 3.5.2.4 (a) ii) and the appropriate planning application process.

Level 2

Level 2 resources represent significant components of the Natural Heritage Resource network. The features and function of these areas should be retained, however, there is potential for development if no negative impact can be demonstrated. Level 2 resources include:



- Significant valleylands;
- Provincially significant life science ANSI;
- Significant wildlife habitat, including but not limited to core winter deer yards, colonial water-bird nesting sites, rare vegetation communities (i.e., tall grass prairies), and significant areas of vernal pools;
- Watercourses, minimum vegetation protections zones, and connectivity linkages; and,
- Woodlands greater than 4 hectares and less than 10 hectares.

Section 3.5.2.4 a(ii) of the City of Barrie Official Plan also states that an EIS will be required to be completed for any development or site alteration in or within 120 metres of an area identified as Level 2 on Schedule H.

Level 3

Level 3 resources represent significant and supporting components of the Natural Heritage Resource network. There is opportunity for development if the proposal ensures the protection and buffering of the significant features and/or retains the supporting function of the feature.

Level 3 resources include:

- Regionally significant life science ANSI;
- Woodlands greater than 0.5 hectares and less than 4 hectares;
- Woodlands within 30 m of a Level 1 or 2 features;
- Cultural thicket or cultural meadow communities contiguous with woodland or wetland patches;
- Connectivity linkages.

Section 3.5.2.4 a(iii) of the City of Barrie Official Plan also states that an EIS will be required to be completed for any development or site alteration in or within 30 metres of an area identified as Level 3 on Schedule H.



According to Zoning By-law 2009-141, the Site is primarily zoned 'General Industrial' (GI), with a portion of the Site along the west boundary zoned 'Environmental Protection' (EP).

2.5 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*.

2.6 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.

2.7 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.

2.8 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 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.

2.9 Migratory Birds Convention Act, 1994

The federal Migratory Birds Convention Act (MBCA) prohibits killing, capturing, injuring, taking or disturbing of the listed migratory birds (including eggs) or the damaging, destroying, removing, or disturbing of nests of the listed species. To ensure compliance with the MBCA during development, best management practices should be implemented to detect and avoid disturbances to active nests of listed species. Active nests are protected and should be left undisturbed until all young have fledged, or the nest is determined by a professional to be inactive.

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 and Natural Heritage Information Centre NHIC Database Records (Ministry of Natural Resources and Forestry, 2019); Accessed May 7, 2021
- Aquatic Species at Risk Maps - Ontario (Fisheries and Oceans Canada, 2018); Accessed August 19, 2021
- Aquatic Resource Area Summary Data (Government of Ontario, 2015); Accessed August 19, 2021
- Ontario Flow Assessment Tool (Ministry of Natural Resources and Forestry, 2020); Accessed December 9, 2021
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature, 2018);
- Ontario Breeding Birds Atlas (OBBA) (2001-2005) (Bird Studies Canada, 2005);
- Lake Simcoe Region Conservation Authority regulated area mapping
- Barrie Creeks, Lovers Creek, and Hewitt's Creek Subwatershed Plan (Lake Simcoe Region Conservation Authority, 2012)

- Fisheries Impact Assessment Report Whiskey Creek Culvert Expansion, Bayview Drive, Barrie (Azimuth Environmental Consulting Inc., 2008)
- City of Barrie Official Plan
- Zoning By-law 2009-141

Figure 1 shows the mapped natural heritage features present in the general area of the Site.

3.1.1 Consultation and Agency Correspondence

Regulatory agency consultation may involve input from Fisheries and Oceans Canada (DFO), the Ministry of Natural Resources and Forestry (MNRF), the Ministry of Environment, Conservation, and Parks (MECP), and/or the local Conservation Authority, as applicable. The MECP is 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.

No direct consultation with regulatory authorities was undertaken for this project due to the availability of site-specific data via publicly accessible resources.

3.2 Field Investigations

Ecological investigations were completed on the Site by a team of qualified ecologists to understand potential ecological constraints to development and opportunities for restoration/enhancement. Information gathered through the background review was used to guide the development of the fieldwork program and was supplemented with additional site-specific information gathered through various standard methodologies. Survey methodologies for each of the field investigations completed on the Site are described in the following sections.



All surveys were conducted by appropriately trained Cambium staff. Survey stations were GPS marked in the field. Data were documented manually, reviewed upon return to the office, and transposed to digital format for secure data management.

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 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; MNRF 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.



3.2.3 Breeding Bird Surveys

Two breeding bird surveys at least 7 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 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 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.

3.2.4 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). The protocol requires that for sites with ≤ 10 ha of treed forest or swamp ELC community types, a minimum of 10 randomly selected plots are to be surveyed, with an additional plot added per hectare, to a maximum of 35 plots for the project area. At each plot, the number of snag/cavity trees ≥ 25 cm DBH within a 12.6 m radius (0.05 ha) is to be recorded. A calculation is then made to determine the snag density and if the number of cavity trees found meets the criteria for maternity surveys. Rather than the 10 plot method, Cambium surveyed the entire property for suitable maternity roost trees.



3.2.5 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 2. Representative Site photos are included in Appendix C and locations of specific surveys are shown on Figure 3.

Table 2 Summary of Field Investigations

Date	Time On Site	Weather	Observer	Activities
2021-05-12	8:45-11:00	9-19°C, Clear Wind: 1	D. Langlois	Bat Maternity Roost Survey
2021-05-28	9:00-14:00	Overcast	A. Kissel	Ecological Land Classification and Vegetation Inventory
2021-05-31	6:15-7:00	12°C, Cloud Cover: 10%, Wind: 0, Noise: 1	M. Soden	Breeding Bird Survey #1
2021-06-07	6:15-7:00	22°C, Cloud Cover: 30%, Wind: 1, Noise: 1	M. Soden	Breeding Bird Survey #2
2021-06-16	10:45-12:30	13-18°C, Clear Wind: 2 Noise: 2	D. Langlois	Aquatic Habitat Assessment
2021-07-6	12:00-16:00	39°C, Clear	K. McKitterick	Ecological Land Classification and Vegetation Inventory
2021-09-02	9:00-11:00	17°C, Clear	K. McKitterick	Ecological Land Classification and Vegetation Inventory
2021-12-07	10:00-14:00	-5°C, Clear	K. McKitterick	Woodland Dripline Staking with LSRCA (Jessica Chan)

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)

Noise is reported based on background noise levels: Index 0 – no appreciable effect, 1 – slightly affecting sampling, 2 – moderately affecting sampling, 3 – seriously affecting sampling, 4 – profoundly affecting sampling.

4.1 Landscape Position and Topography

The Site is located 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 is situated in the Lake Simcoe watershed, and more specifically the Barrie Creeks subwatershed. A small watercourse known locally as Whiskey Creek extends along the southern boundary and flows on adjacent lands west and north of the Site. The Site was dominated by large, relatively flat, open areas; however, several forested ridges and small topographical features are present that separated these open areas. To the north and west of the Site, the topography sloped relatively steeply towards Whiskey Creek.

4.1.1 Significant Valleylands

Significant valleylands are among the natural heritage feature types 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.

A valley feature is present adjacent to the Site, associated with Whiskey Creek. We note that the northern property boundary generally follows the top of slope of the valley feature (see Figure 4). An assessment of the significance of the valleylands was carried out based on site-specific observations and criteria provided in the NHRM (Ministry of Natural Resources, 2010). The feature adjacent to the Site qualifies as Significant Valleylands based on the follow criteria:

- Conveys water for more than 2 months of the year as it contains an intermittent watercourse;

- Well defined valley morphology with a width greater than 25 m; and,
- Riparian area presents largely with natural cover.

4.2 Vegetation Communities

The majority of the Site is occupied by open, cultural meadow communities exhibiting signs of human disturbance. Several forested pockets are also present on the property, along the northern and eastern boundary as well as in the central area of the Site. The forested areas consist mostly of Red and Scots Pine plantations, with some deciduous species (including Norway Maple, Manitoba Maple, Red Oak, and Sugar Maple). The margins of these forested areas have begun to naturalize along the transitional area between cultural meadow and existing forested lands, and have developed communities dominated by Staghorn Sumac, Black Locust, and Scots Pine. Similar communities have established in the transitional area between the open cultural meadow and the forested lands located to the west. Several small, isolated exposed sand pockets were identified on Site within the cultural meadow community (Community 3). These areas were surveyed for ecologically significant vegetation species (e.g., species indicative of remnant natural areas); however, none were observed. These areas have established adjacent to existing recreational vehicle trails, and show evidence (tire tread marks, refuse, etc.) of heavy anthropogenic use and are likely a result of anthropogenic activity on Site.

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

Table 3 Vegetation Communities

No.	ELC Code	Community Description	Community Type	S -Rank
1	FOM6-2	Fresh - Moist Hemlock -Hardwood Mixed Forest	Terrestrial	S5
2	FOD5-2	Fresh Sugar Maple -Beech Deciduous Forest	Terrestrial	S4/S5
3	CUM1-1	Mineral Cultural Meadow	Terrestrial	N/A



No.	ELC Code	Community Description	Community Type	S -Rank
4	CUT	Cultural Thicket	Terrestrial	N/A
5	CUW	Cultural Woodland	Terrestrial	N/A
6	CUP3-1	Red Pine Coniferous Plantation	Terrestrial	N/A
N/A	CVC	Commercial and Institutional	Anthropogenic	N/A

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 woodlands on/adjacent to the Site have been mapped as a Level 1, Level 1 with existing designation and Level 3 Natural Heritage Resources on Schedule H. 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 City is approximately 15% based on recent data per Natural Heritage System and Restoration Strategy for the Lake Simcoe Watershed (LSRCA, 2018). As per the Natural Heritage Reference Manual (Ministry of Natural Resources, 2010), where woodland cover is about 5 – 15% of the land cover, woodlands 4 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, and should therefore be considered significant as it meets the woodland size criteria.

- Ecological Functions Criteria

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

Based on the above criteria analysis, the woodland on the Site is considered a Significant Woodland; however, the core portion of the feature located on adjacent lands exhibits a notably more natural character. The woodland dripline was delineated in the field with LSRCA in December 2021, as shown on Figure 3.

4.3 Surface Water and Drainage Features

Whiskey Creek, a tributary of Lake Simcoe, runs along the western and northern boundary of the Site and crosses the unopened right of way located on the east side of Bayview Drive, conveying flows northwest. South of the property, a historical channel realignment has redirected the creek around the neighbouring facility (i.e., The Source).



According to the Ontario Flow Assessment Tool (Ministry of Natural Resources and Forestry, 2020) the subject tributary has an upstream drainage area of approximately 2.9 km² and is largely within the urban area of the City of Barrie.

No other surface water or drainage features were documented on the Site.

4.4 Fish and Fish Habitat

The subject watercourse, Whiskey Creek, has an intermittent flow regime on the Site. A Fisheries Impact Assessment Report previously completed for the reconstruction of the nearby Bayview Road crossing of Whiskey Creek (Azimuth Environmental Consulting Inc., 2008) notes that the subject watercourse originates in the Veteran's Drive area, west of Highway 400. It exhibits a coldwater thermal regime and supports a local Brook Trout (*Salvelinus fontinalis*) population. Appendix E includes a list of fish species known to occur in Whiskey Creek, based on the background information review, and species-specific life history information.

For the purposes of this report, Whiskey Creek was segmented into two reaches (Reach A and Reach B, shown on Figure 3), and delineated based on notable changes in channel morphology and riparian community composition. Reach A crosses the unopened right of way southwest of the Site. No flow or pools of standing water were documented in the channel at the time of the investigation. The average bankfull width was approximately 2.5 m. In-channel substrates were dominated by fines and organic detritus, with deposits of sand, gravel, and cobble. Both the right and left bank were documented as unstable due to exposed soils and numerous erosion scars. In-stream cover consisted primarily of undercut banks, with sparse woody debris. No aquatic macrophytes were documented. This reach is heavily impacted by anthropogenic disturbances as existing trails cross the feature in several locations.

A knickpoint was observed in the channel at the upstream end of Reach A. This abrupt change in bed elevation likely acts as an obstacle to fish movement under low to moderate flow conditions.

Reach B, also located on adjacent lands, running along the southern boundary of the Site, consists of a historically straightened channel. The channel and channel banks were lined with gabion baskets from the previous realignment works. No flow or pools of standing water were documented in the channel at the time of the investigation. Average bankfull width was estimated to be 2.0 m. In-channel substrates were dominated by fines and organic detritus. Riparian vegetation included willows, aspens, and Red Osier Dogwood, providing a moderate amount of overhead cover for the channel.

Overall, Whiskey Creek adjacent to the Site provides poor fish habitat under baseflow conditions with its function limited to indirect habitat under the majority of flow conditions. Potential exists for seasonal occupancy during spring conditions, however, the feature lacks suitable spawning conditions for fall spawning species (i.e., Brook Trout) due to limited depth, flow, and substrate composition.

We note that the watercourse, its riparian buffer area, and its floodplain, are regulated by LSRCA under O.Reg. 179/06.

4.5 Wildlife Survey Results

Incidental wildlife observations were recorded during all site visits. These included American Crow, American Redstart, American Robin, Black-capped Chickadee, Blue Jay, Red-tailed Hawk, Common Yellow-throat, Wild Turkey, Pine Siskin, Eastern Cottontail, Eastern Coyote, Eastern Chipmunk, Eastern Gray Squirrel, and Red Fox.

4.5.1 Birds

OBBA breeding bird surveys were completed as a part of the current study, as detailed in Appendix F. 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 10 species exhibited probable or confirmed breeding evidence (shaded cells in Appendix F). No areas-sensitive forest birds or grassland birds were documented with probable or confirmed breeding evidence on/adjacent to the Site.



Chimney Swift, a threatened species, was documented at BBS2, flying over the Site on May 31, 2021; however, no probable or confirmed breeding evidence was recorded. Chimney Swift frequently use anthropogenic structures for nesting habitat, no suitable nesting structures (habitat) are located on the Site.

4.5.2 Mammals

Given the relatively small size of the forest communities located on the Site, the entire communities were surveyed for suitable roosting trees by walking transects throughout each forest community. No vegetation communities with either a moderate or high density of suitable roosting trees were documented on the Site.

The majority of the treed areas on the Site consisted of Red and Scots Pine plantations, with some young deciduous species (including Norway Maple, Manitoba Maple, Red Oak, and Sugar Maple). Other treed areas consisted of transitional habitats, dominated by Staghorn Sumac, Black Locust, and Scots Pine, which did not provide suitable roosting habitat.

The forested lands adjacent to the Site within Lackie's Bush may provide more suitable habitat for bats.

4.6 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 subject property. Information gathered during the background review and field investigations were compared to SWH criteria to evaluate the property for SWH. A comprehensive SWH Screening table is provided in Appendix G. Details on species of conservation concern and their protected habitats are provided in Section 4.7.

4.7 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, in order to identify suitable habitat for species located on or adjacent to the Site. A detailed habitat suitability analysis is provided in Appendix H and a discussion of the results is provided below.

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

4.7.1 Endangered and Threatened Species

The Site may provide habitat for the following bat species: Tri-coloured Bat, Northern Myotis, and Little Brown Myotis. Bat Maternity Roost surveys determined that while there are suitable cavity trees for bats to roost, these trees do not occur at a density that meets the threshold for habitat protection. Open areas of the Site may be used as foraging habitat for these species; however, foraging habitat is not protected under the ESA. As such, there is no protected habitat for SAR bats on the Site. No SAR bats or evidence of bats was observed on the Site. Avoidance and mitigation measures relating to the general protection of bats are provided in Section 5.4.

4.7.2 Special Concern Species

Snapping Turtle may be present in the watercourse adjacent to the Site. Existing ground cover in open areas of the Site was dominated by meadow species, which do not provide preferred nesting habitat for turtles. Mitigation measures relating to the protection of turtles are provided in Section 5.5.

The MNRF NHIC database contains an occurrence record for Eastern Milksnake; federally listed as special concern), within the 1km UTM Grid Square that overlaps the Site (17PK0512). 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 (Ministry of Natural Resources and



Forestry, 2014). The milksnake is secretive and is not likely to be encountered during the day. Mitigation measures relating to the protection of snakes are provided in Section 5.5.



5.0 Impact Assessment and Mitigation Measures

The proposed development consists of a commercial/industrial subdivision.

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
- Fish Habitat/Intermittent Stream
- Habitat of Endangered and Threatened Species

No other natural heritage features protected by provincial policy were confirmed on or adjacent to 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

Significant valleylands are present on lands adjacent to the Site, associated with the Whiskey Creek corridor. This feature, and the associated vegetation protection zone (VPZ) applied are nearly entirely contained within the Level 1 Natural Heritage Resource Network mapped by the City of Barrie. The Level 1 area widely provides a VPZ greater than 30 m from the top of slope, and is considered sufficient to protect the existing form and function of the feature provided that 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 significant valleylands 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 further in Sections 5.2 and 5.3, respectively.

5.2 Significant Woodlands

Contiguous significant woodlands are present on the Site and on adjacent lands. Significant woodlands on adjacent lands are contained within the existing Level 1 Natural Heritage Network designation, mapped and made available by the City of Barrie. The Level 1 lands on the western portion of the Site will be retained where they overlap with the Site boundaries, as shown on Figure 4. A 15 m minimum vegetation protection zone (VPZ) is recommended to provide protection for this feature, as shown on Figure 3. The 15 m VPZ extending onto the Site is considered sufficient to protect the existing form and function of the feature provided that 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).

Woodland driplines on the Site were staked and surveyed on site with LSRCA staff present, as noted in Section 4.2.1. The woodlands on the Site meet the NHRM criteria for significance based on size, proximity to other woodlands or other habitats, linkages, and water protection criteria.

The proposed development includes removals of woodlands outside of those designated as Level 1 features on Schedule H, and the 15 m VPZ, as shown on Figure 4. The proposed woodland removals represent an approximate area of 10.35 ha. This portion of the woodland is outside the valleyland feature and outside the development setback for the watercourse. The woodland is significant primarily due to its connectivity to the watercourse, fish habitat, riparian protection function, and as a linkage corridor. These functions will be maintained on the Site through the protection of the Level 1 lands, valleylands, and watercourse features.

Woodland compensation for the proposed removals will need to be discussed and agreed upon, through consultation with the City of Barrie.

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. 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.



5.3 Fish Habitat/Intermittent Stream

Fish habitat is present adjacent to the Site, in Whiskey Creek. A 30 m minimum vegetation protection zone (VPZ) is recommended to provide protection for this feature, as shown on Figure 3. The 30 m VPZ is considered sufficient to protect the existing form and function of the feature provided that 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).

Indirect impacts to fish habitat, including potential for changes to water quality, will be mitigated through appropriate Erosion and Sediment Control (ESC) measures and stormwater management as detailed in Section 5.5.

5.4 Habitat of Endangered and Threatened Species

The Site and adjacent lands may offer marginal bat roosting habitat potential in some of the forested communities. As such, vegetation removal on the Site should occur outside of the active bat season, which extends from April 1 to September 31 of any given year. Any SAR discovered on the property will be left undisturbed as required by the ESA. If any individuals are encountered, activities should cease until consultation MECP has occurred. Provided this timing window is respected, no impacts to at risk bats is anticipated from the proposed development.

5.5 Best Management Practices

To minimize potential impact to the natural environment on and surrounding the Site, Cambium recommends that the best management practices outlined in Table 4 be implemented at the Site.

Table 4 Best Management Practice Recommendations

Potential Impact	Recommended Best Practice
Erosion and Sedimentation	Prior to any construction activities taking place, it is essential that perimeter sediment fencing be installed around construction areas. Fencing should be properly keyed into the ground and securely fastened to vertical supports spaced $\leq$ 2 m apart. This key control measure will help prevent sediment from entering surface water features (i.e., watercourses) 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



Potential Impact	Recommended Best Practice
	observed overland drainage channels originating from Site, that may or may not have arisen as a result of erosion, should be directed to a check dam structure, prior to discharging to off-site areas. Construction activities that require earthworks (e.g., grading, excavation, etc.) should be scheduled to avoid dates of heavy rainfall events and times of high runoff volumes.
Increase in Runoff - Impervious Surfaces	Runoff from the Site is expected to increase with the introduction of impermeable surfaces (i.e., building roofs, roadways, and walkways) and compacted surfaces with reduced infiltration capacity. Measures to increase infiltration of run-off from these surfaces should be encouraged and, where possible, included in the Site Plan for the development. Eaves trough downspouts should be directed to vegetated areas (such as lawn, or gardens) and not onto hardened surfaces, to encourage infiltration.
Changes to Water Quality and Quantity	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.
Wildlife: Birds (Disturbance and Harm)	Nesting birds and their nests, eggs, and young are protected under the <i>Migratory Birds Convention Act, 1994</i>. Vegetation clearing on the Site should occur outside the breeding bird season, which extends from April 1 to August 31 in the local area (as per Environment and Climate Change Canada Guidelines). If vegetation clearing or construction is to occur between April 1 and August 31, the vegetation should be investigated by a qualified biologist to confirm if any active nests are present, prior to site alteration. 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. Note that some birds nest on the ground and in low-lying vegetation and shrubs; therefore, all habitat types should be inspected prior to ground disturbance if removals are to occur during the breeding season.
Wildlife: Reptiles (Disturbance and Harm)	Turtles and snakes are particularly vulnerable to construction-related impacts on sites adjacent to wetlands, watercourses, and waterbodies. As the Site is located adjacent to 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 individuals are encountered, they should be photographed and allowed time to move out of harm's way.
Species at Risk (SAR; Threatened and Endangered)	SAR observations, including most species of snakes and turtles, should be reported to the Natural Heritage Information Centre (NHIC). If any individuals are encountered, they should be photographed and allowed time to move out of harm's way. SAR should not be handled by unauthorized individuals.



Potential Impact	Recommended Best Practice
Spread of Invasive Species	Invasive species are becoming problematic throughout Ontario and can adversely impact our natural landscapes, including wetlands, woodlands, and watercourses. Best management practices to reduce the spread of invasive species include: Revegetate with species native to the local area. Request fill and compost from reputable sources that are conscious of the potential for the spread of invasive species via these media. Get to know the most common invasive species in the area. Brush off or clean any shoes, boots and equipment that have encountered invasive species before returning to the property. Immediately eradicate invasive species if they are observed on the property. Do not compost invasive species; put them in plastic bags and dispose of them in the garbage. Do not dispose of lawn or garden clippings in the forest or wetlands to avoid species introductions. An excellent resource for identifying and controlling invasive species can be found through the Ontario Invasive Plant Council: Home - Ontario Invasive Plant Council (ontarioinvasiveplants.ca) (OIPC, 2022)
Anthropogenic Impacts – Noise	Noise is not expected to increase significantly because of the proposed development as it is consistent with the land use on the surrounding properties. Maintaining the wooded areas surrounding the natural features on the Site will serve to buffer wildlife within the natural areas from noise-related impacts. Temporary acute noise may occur during construction activities and should follow appropriate local noise by-laws. All equipment should be equipped with appropriate mufflers to mitigate noise levels during construction.
Anthropogenic Impacts – Lighting	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.

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 5. The policies under the LSPP that apply to Settlement Areas (Section 2.3) 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). This Study addresses the EIS requirements of the Official Plan for all confirmed features on or adjacent to the Site and complies with the policies, as detailed in Table 6.

With respect to the natural heritage policies of the LSPP, in Cambium's opinion, the proposed mitigation measures (i.e., maintenance and enhancement of vegetation protection zones) satisfy the requirements of sections 6.33-dp and 6.34-dp. The proposed development does not directly impact fish habitat in the watercourse or the 30 m riparian area adjacent that feature and recommends that the riparian setback be maintained as natural self-sustaining vegetation. The Stormwater Management Plan for the Site addresses water quality and quantity requirements prior to discharge to the watercourse.

Table 5 Policy Compliance Summary

Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
Significant Wetland in Ecoregions 5E, 6E and 7E or in the Canadian Shield north of Ecoregions 5E, 6E and 7E	No	No	N/A
	Explanation:		
Significant Coastal Wetland	No	No	N/A
	Explanation:		
Coastal Wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b)	No	No	N/A
	Explanation:		
Significant Woodlands in Ecoregions 6E and 7E	Yes	Yes	Yes



Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
(excluding islands in Lake Huron and the St. Marys River)	Explanation: No negative impacts to the woodland feature extending onto the Site are anticipated as the form and function of the woodland will be protected, through the protection of the adjacent Level 1 feature area, the watercourse and valleylands. A 15 m VPZ is provided for the woodlands on the Level 1 lands. A portion of the woodland will be removed, and appropriate compensation and enhancement of the retained woodland will be provided through consultation with the City of Barrie.		
Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)	No	Candidate	Yes
	Explanation: The valleyland feature is located almost entirely on adjacent lands. No negative impact to this feature is anticipated provided the measures to protect the watercourse and woodlands are implemented as detailed herein.		
Significant Wildlife Habitat (including habitat of special concern species)	Candidate	Candidate	Yes
	Explanation: No negative impacts to SWH are anticipated as a result of the proposed development. Any potential impacts resulting from new built features or site alteration should be sufficiently mitigated through the implementation of recommendations summarized in Section 7.0.		
Habitat of Threatened and Endangered Species	Potentially	Potentially	Yes
	Explanation: Forested areas of the Site may provide marginal quality roosting habitat for bat species. Provided the mitigation in Section 5.4 is implemented, no impact to the species is anticipated.		
Areas of Natural and Scientific Significance	No	No	N/A
	Explanation:		
Fish Habitat	No	Yes	Yes
	Explanation: No negative impacts to Fish Habitat are anticipated as a result of the proposed development. The implementation of a minimum 30 m vegetation protection zone (VPZ) will effectively mitigate potential impacts to fish habitat and the watercourse identified adjacent to the Site. Any potential impacts resulting from new built features or site alteration should be sufficiently mitigated through the implementation of recommendations summarized in Section 7.0.		



Table 6 City of Barrie Policy Compliance Summary

Natural Heritage Resource	On Site	On Adjacent Lands	Meets Associated Policy
Level 1	Yes	Yes	Yes
	Explanation: The Level 1 lands on the western portion of the Site will be retained where they overlap with the Site boundaries, and both the onsite and adjacent Level 1 lands will be protected with a 15 m VPZ, as shown on Figure 4. The 15 m VPZ is considered sufficient to protect the existing form and function of the feature provided that 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).		
Level 1 with Existing Development Designation Subject to 3.5.2.4 (d)	Yes	Yes	Yes
	Explanation: The Level 1 lands with existing development designation on the Site are proposed for removal, however the form and function of the adjacent Level 1 feature (significant woodland) will be maintained. The proposed removals are located outside the valleyland feature and outside the development setback for the watercourse. The woodland is significant primarily due to its connectivity to the watercourse, fish habitat, riparian protection function, and as a linkage corridor. These functions will be maintained on the Site through the protection of the Level 1 lands, valleyland and watercourse features, and the retention of a 15 m VPZ.		
Level 2	No	No	No
	Explanation:		
Level 3	Yes	Yes	Yes
	Explanation: The Level 3 lands are located outside the valleyland feature and outside the development setback for the watercourse. No negative impacts to the adjacent Level 1 feature are anticipated as the 15 m VPZ should serve to protect the form and function of the feature.		



7.0 Summary of Mitigation, Compensation, and Best Practices

The following recommendations are provided for the proposed development:

1. All required approvals and permits should be obtained prior to the commencement of any Site alteration / construction activities.
2. 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. Watercourse and associated minimum 30 m setback.
 - 1.2. Level 1 Feature and associated 15 m setback.
3. The recommended setbacks should be maintained as existing forest cover and be allowed to naturally self-sustain.
4. 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.
5. Woodland compensation for the proposed removals will need to be discussed and agreed upon, through consultation with the City of Barrie.
6. Clearing of vegetation should occur outside of the active bird and bat season, which extends from April 1 to September 31. Vegetation removal should be limited to the greatest extent possible across the Site. Any active bird nests should be left undisturbed until young have fledged or the nest is determined to be inactive.
7. The Stormwater Management Plan prepared for the Site should specifically address potential stormwater-related impacts to water quality and quantity of the surrounding features, erosion potential, and a feature-based water balance study (if required).
8. Prior to the commencement of site alteration, double row heavy duty sediment fence with straw bales in between should be installed along the watercourse side of the construction



area and any proposed material stockpile locations, as per Ontario Provincial Standard Drawing (OPSD 219.110), prior to the commencement of any Site alteration.

- Fencing should be properly keyed into the ground and securely fastened to vertical supports spaced ≤ 2 m apart.
 - All sediment fencing should be regularly maintained and kept in good working condition, until the area has been stabilized and/or successfully revegetated.
 - All ESC fencing should be removed following construction, once exposed soils have been revegetated or appropriate stabilized.
9. Machinery and construction materials should be stored within the designated construction area, throughout the construction period.
 10. Construction activities that require earthworks (e.g., grading, excavation, etc.) should be scheduled to avoid dates of heavy rainfall events and times of high runoff volumes.
 11. Best management practices to reduce the spread of invasive species should be implemented at the Site.
 12. 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.
 13. Though not identified in the field inventories, any subsequently identified SAR discovered on the Site must be left undisturbed as required by the *Endangered Species Act, 2007*. If any SAR individuals are encountered, they should be photographed and allowed time to



move out of harms way. All SAR observations should be reported to the MNRF 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,

Cambium Inc.

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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

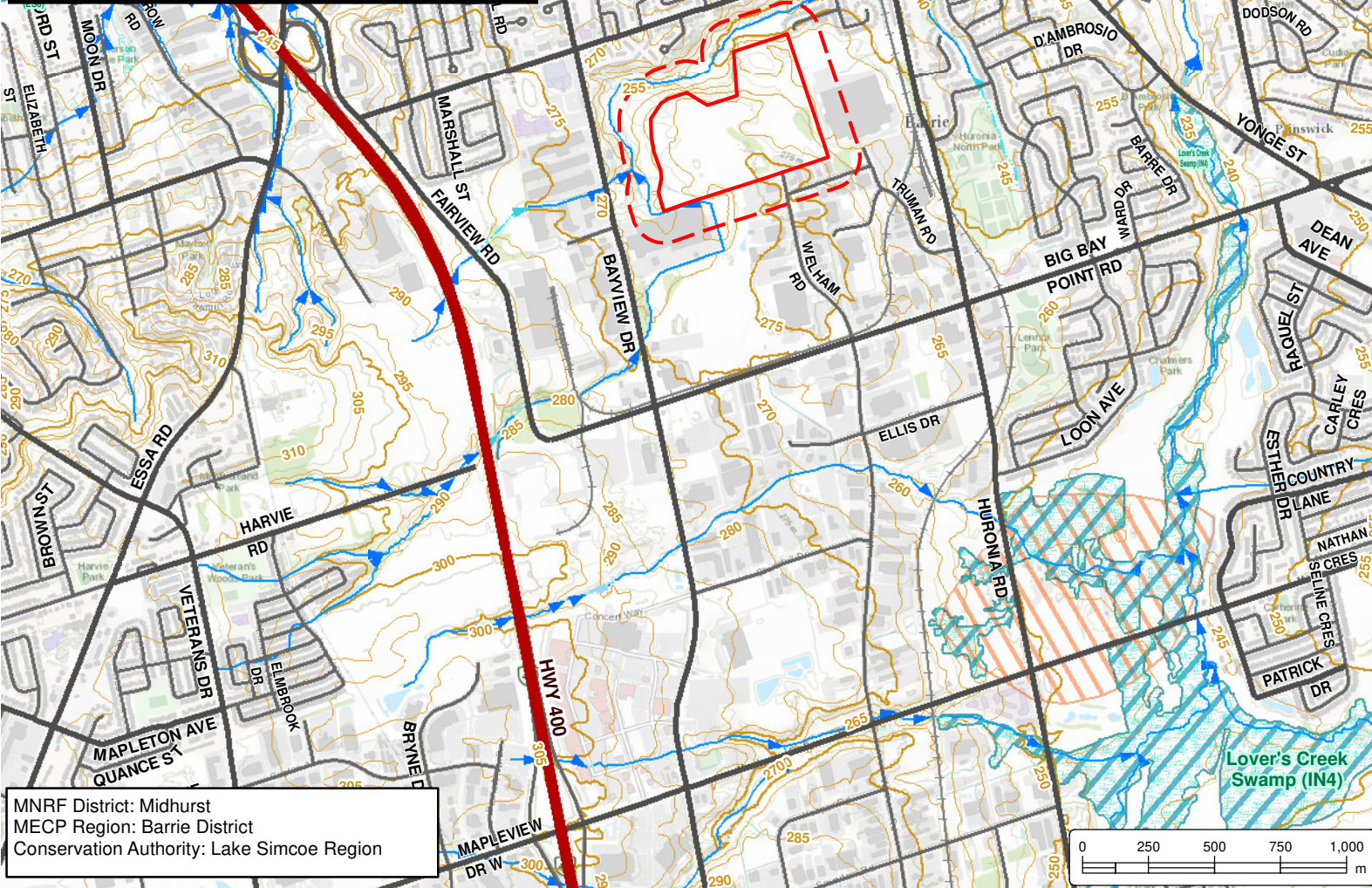
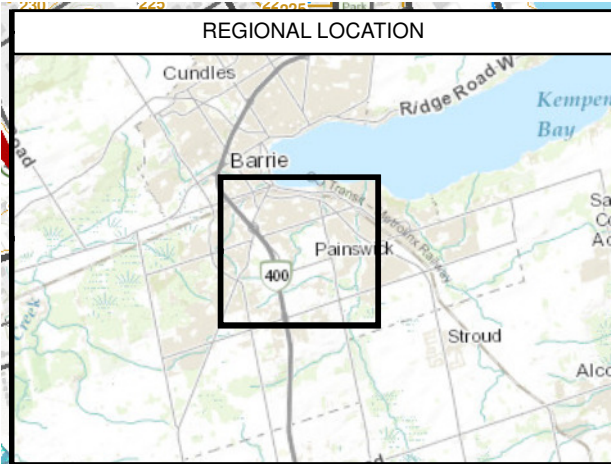


F&W: Fish and Wildlife
FA: Fisheries Act (Federal)
FEC: Forest Ecosystem Classification
FMP: Forest Management Plan
FRI: Forest Resources Inventory
FWCA: Fish and Wildlife Conservation Act
GGH: Greater Golden Horseshoe
GHP: General Habitat Protection

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



Appended Figures



MNRF District: Midhurst
MECP Region: Barrie District
Conservation Authority: Lake Simcoe Region

ENVIRONMENTAL IMPACT STUDY

TLM HOLDINGS INC.
50 Welham Road
Barrie, Ontario

LEGEND

- Highway
- 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)
- Ecodistrict
- Site
- 120m Adjacent Lands

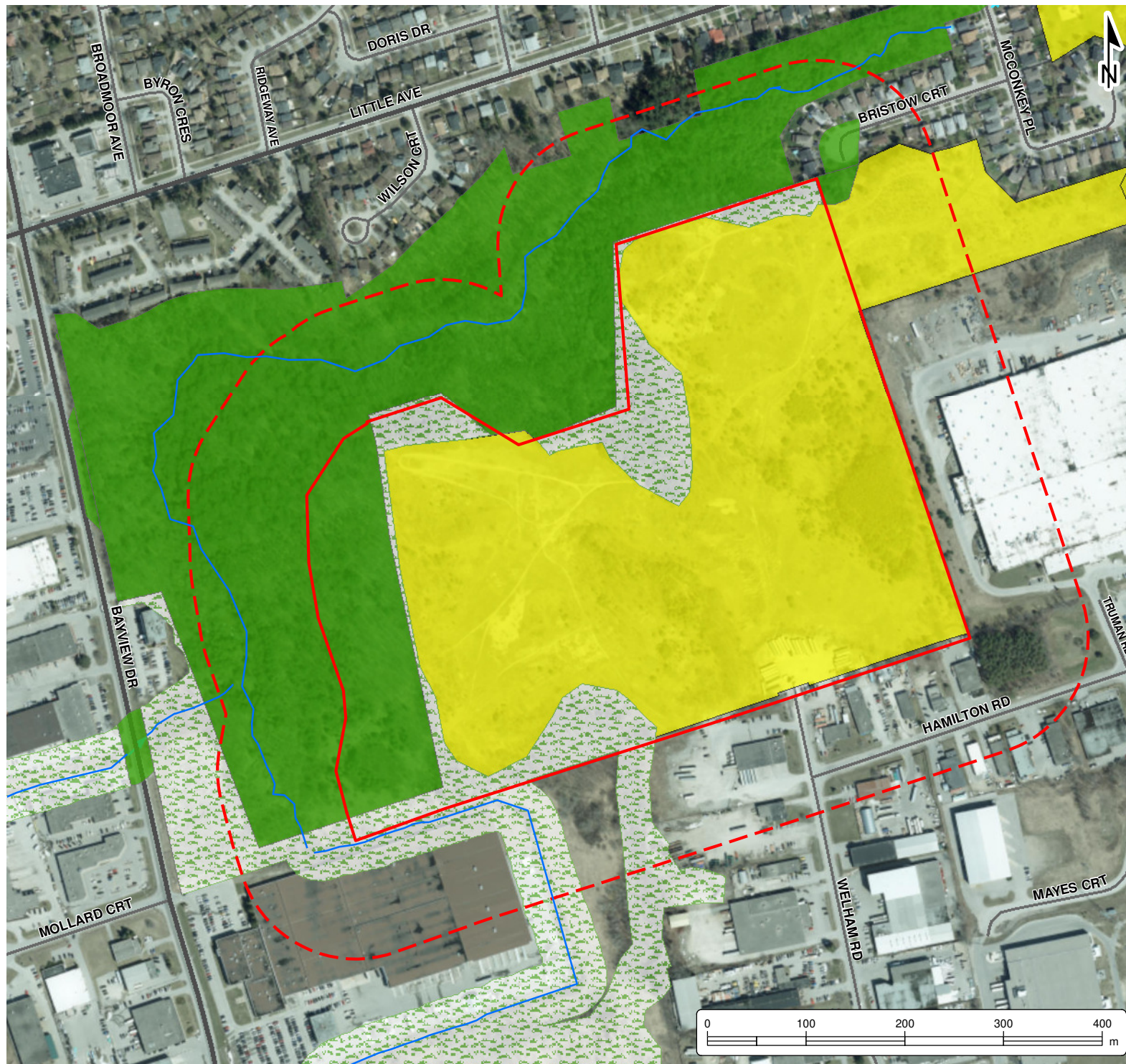
Notes:
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- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This 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 NATURAL HERITAGE POLICY AREAS

Project No.: 13008-001	Date: February 2023
Scale: 1:25,000	Rev.: NAD 1983 UTM Zone 17N
Created by: DJL	Checked by: JPP
Figure: 1	



ENVIRONMENTAL IMPACT STUDY

TLM HOLDINGS INC.
50 Welham Road
Barrie, Ontario

LEGEND

- Major Road
- Minor Road
- Watercourse, Intermittent
- Watercourse, Permanent

Official Plan - Schedule H - Natural Heritage Resource Classification

- Level 1
- Level 1 with Existing
Development Designation
Subject to 3.5.2.4 d
- Level 3
- Site
- 120m Adjacent Lands

Notes:

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SCHEDULE H NATURAL HERITAGE RESOURCES OVERLAY

Project No.: 13008-001	Date: February 2023
Scale: 1:5,500	Rev.: NAD 1983 UTM Zone 17N
Created by: DJL	Checked by: JPP
Figure: 2	

O:\GIS\MXD\13000-13099\13008-001 TLM Holdings Inc. EIS - 50 Welham Road, Barrie\2021-08-25 FIG 3 - Natural Heritage Features and Survey Locations.mxd



ENVIRONMENTAL IMPACT STUDY

TLM HOLDINGS INC.
50 Welham Road
Barrie, Ontario

LEGEND

- Breeding Bird Survey Station (BBS)
- Woodland Dripline as Staked with LSRCA (Surveyed)
- Major Road
- Minor Road
- Watercourse, Intermittent
- Watercourse, Permanent
- Reach Break
- Vegetation Communities
- Woodland
- Site
- 120m Adjacent Lands

VEGETATION COMMUNITIES

- FOM6-2;** Fresh - Moist Hemlock - Hardwood Mixed Forest
 - FOD5-2;** Fresh Sugar Maple - Beech Deciduous Forest
 - CUM1-1;** Mineral Cultural Meadow
 - CUT;** Cultural Thicket
 - CUW;** Cultural Woodland
 - CUP3-1;** Red Pine Coniferous Plantation
- CVC;** Commercial and Institutional
FOM; Mixed Forest

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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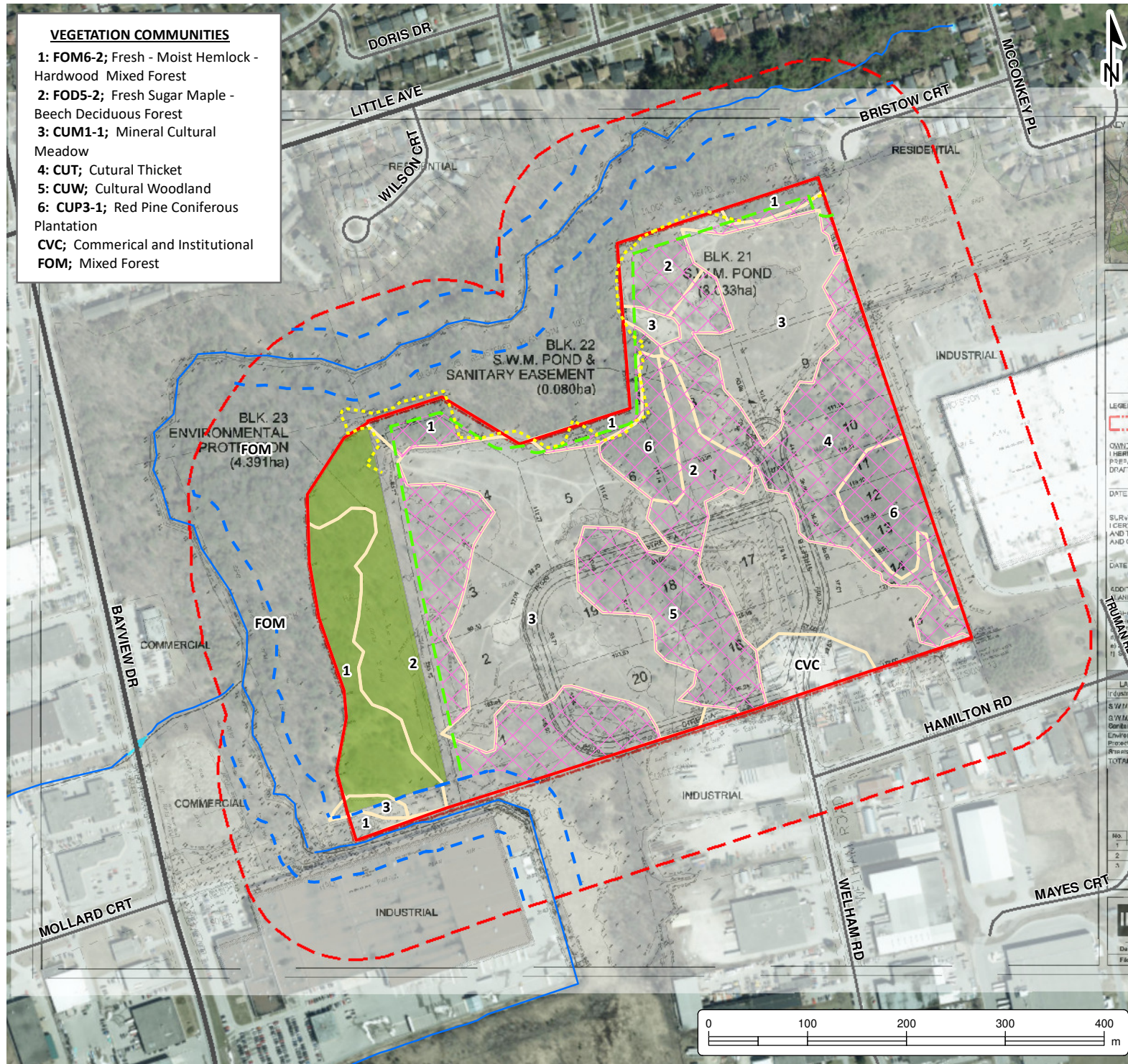
NATURAL HERTIAGE FEATURES AND SURVEY LOCATIONS

Project No.: 13008-001	Date: November 2021
Scale: 1:5,500	Rev.: February 2023
Created by: DJL	Projection: NAD 1983 UTM Zone 17N
Checked by: JPP	Figure: 3

O:\GIS\MXDs\13000-13009\13008-001 TLM Holdings Inc. EIS - 50 Welham Road, Barrie\2022-09-22 FIG 4 - Natural Heritage Constraints.mxd

VEGETATION COMMUNITIES

- 1: FOM6-2; Fresh - Moist Hemlock - Hardwood Mixed Forest
2: FOD5-2; Fresh Sugar Maple - Beech Deciduous Forest
3: CUM1-1; Mineral Cultural Meadow
4: CUT; Cultural Thicket
5: CUW; Cultural Woodland
6: CUP3-1; Red Pine Coniferous Plantation
CVC; Commerical and Institutional
FOM; Mixed Forest



ENVIRONMENTAL IMPACT STUDY

TLM HOLDINGS INC.
50 Welham Road
Barrie, Ontario

LEGEND

- Top of Slope
- Major Road
- Minor Road
- Watercourse, Intermittent
- Watercourse, Permanent
- 30 m Vegetation Protection Zone (VPZ)
- Level 1 Natural Heritage Resource Feature 15 m Buffer
- Level 1 Natural Heritage Resource Feature (As per City of Barrie OP Schedule H)
- Vegetation Communities
- Woodland Removals (approximately 10.35 ha)
- Site
- 120m Adjacent Lands

Notes:
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NATURAL HERITAGE CONSTRAINTS

Project No.: 13008-001	Date: March 2023
Scale: 1:5,500	Projection: NAD 1983 UTM Zone 17N
Created by: DJL	Checked by: JPP
Figure: 4	



Appendix A

Correspondence

From: [Kate Lillie](#)
To: [Danielle Langlois](#); planneroftheday@barrie.ca
Cc: [Cambium File](#); [Jeremy Prah](#); [Shawn Filson](#); [Melinda Bessey](#)
Subject: RE: Terms of Reference - EIS 50 Welham Road, Barrie (13008-001)
Date: July 14, 2021 11:10:34 AM
Attachments: [image001.jpg](#)
[image002.png](#)
[image003.png](#)
[TOR checklist_50 Welham Rd Barrie \(13008-001\) KLedit.pdf](#)

Hi Danielle,

Thanks for your email and your patience. I've reviewed the Terms of Reference checklist you provided and included a few additional items. Please see attached.

Of note, I flagged that there is potential for valleyland, grassland/meadow, and seepage areas/springs either on or adjacent to the subject property. I also flagged that additional studies/requirements may include landscape/restoration/planting plans, edge management plan, and ecological offsetting strategy.

Please let me know if you have any questions.

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

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

From: Danielle Langlois <Danielle.Langlois@cambium-inc.com>

Sent: June 21, 2021 11:31 AM

To: planneroftheday@barrie.ca; Kate Lillie <K.Lillie@lsrca.on.ca>

Cc: Cambium File <file@cambium-inc.com>; Jeremy Prah <Jeremy.Prah@cambium-inc.com>

Subject: Terms of Reference - EIS 50 Welham Road, Barrie (13008-001)

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,

Cambium has been retained to complete an Environmental Impact Study (EIS) for the property located at 50 Welham Road, in the City of Barrie, Ontario (the Site). We understand that the Client is pursuing a commercial/industrial subdivision development. Please find attached the completed Terms of Reference checklist.

If you could kindly review and comment on the suitability of the following proposed Terms of Reference for the EIS, that would be greatly appreciated.

Kind Regards,
Danielle



Danielle Langlois, B.Sc., EPT
Technologist/Biologist

Cambium Inc. - Barrie

Environmental | Building Sciences | Geotechnical | Construction Monitoring
p: 705.719.0700 | c: 249.359.6112 | 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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Check out our [video](#) - an inside look at Cambium's culture & career opportunities.

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:

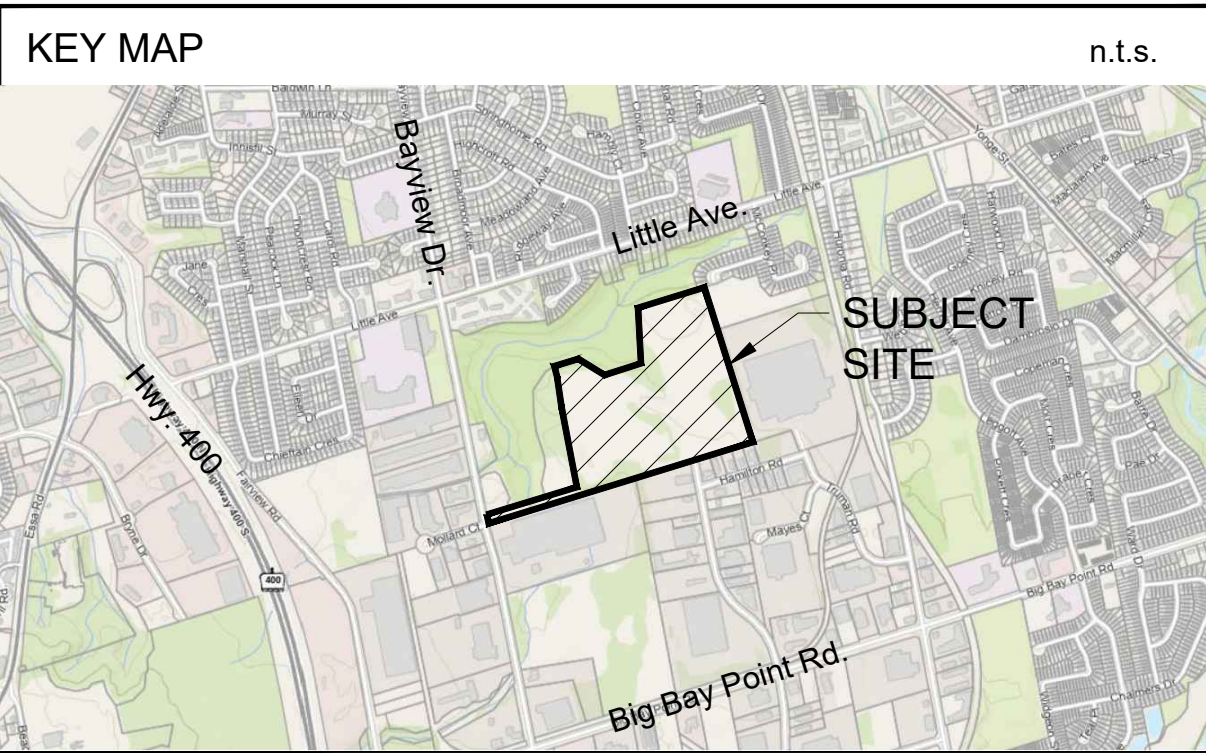
Please note that changes to the study area, the proposed development, and/or policy changes may require additional information/studies.

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.



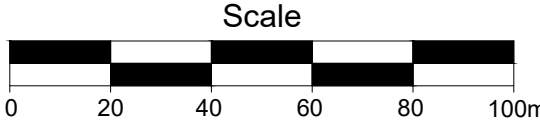
Appendix B

Conceptual Site Plans



DRAFT PLAN OF SUBDIVISION

PART OF NORTH HALVES OF LOTS 9 & 10, CONCESSION 13, (GEOGRAPHIC TOWNSHIP OF INNISFIL), CITY OF BARRIE, COUNTY OF SIMCOE



LEGEND SUBJECT LANDS

OWNER'S CERTIFICATE I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE OWNER'S NAME:

SURVEYOR'S CERTIFICATE I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE SURVEYOR'S NAME:

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

- a) SHOWN ON PLAN b) SHOWN ON PLAN c) SEE KEY PLAN d) RESIDENTIAL e) SHOWN ON PLAN f) SHOWN ON PLAN g) SHOWN ON PLAN h) MUNICIPAL WATER i) SAND, SILT GLACIAL TILL j) SHOWN ON PLAN k) MUNICIPAL WATER & SEWAGE l) NONE

LAND USE STATISTICS			
LAND USE	LOT. / BLK. No.	UNITS	AREA (ha)
Industrial Lots	1 - 20	20	15.948
S.W.M. Pond	21		3.033
S.W.M Pond & Sanitary Easement	22		0.080
Environmental Protection	23		4.391
Streets			2.608
TOTAL	23	20	26.060

SCHEDULE OF REVISIONS			
No.	Date	Description	By
1	November 4, 2022	Update survey;	A.S.
2	November 22, 2022	Update survey;	A.S.
3	February 7, 2023	Revise D.P.	A.S.

IPS INNOVATIVE PLANNING SOLUTIONS PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS 647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7

Date: Sept. 9, 2022 Drawn By: A.S. File: 11 - 352 Checked: K.G.



Appendix C

Photographic Log



Photo 1 Community 1, Fresh -Moist Hemlock-Hardwood Mixed Forest (FOM6-2), May 21, 2021.



Photo 2 Community 1, Fresh -Moist Hemlock-Hardwood Mixed Forest (FOM6-2), May 28, 2021.



Photo 3 Community 2, Fresh Sugar Maple-Beech Deciduous Forest (FOD5-2), May 21, 2021.



Photo 4 Community 2, Fresh Sugar Maple-Beech Deciduous Forest (FOD5-2), May 28, 2021.



Photo 5 Community 3, Mineral Cultural Meadow (CUM1-1), May 21, 2021.



Photo 6 Community 3, Mineral Cultural Meadow (CUM1-1), May 28, 2021.



Photo 7 Community 4, Cultural Thicket (CUT), May 28, 2021.



Photo 8 Community 4, Cultural Thicket (CUT), July 7, 2021.



Photo 9 Community 5, Cultural Woodland (CUW), May 21, 2021.



Photo 10 Community 5, Cultural Woodland (CUW), May 28, 2021.



Photo 11 Community 6, Red Pine Coniferous Plantation (CUP3-1), May 21, 2021.



Photo 12 Community 6, Red Pine Coniferous Plantation (CUP3-1), May 28, 2021.



Photo 13 Community 7, FOD5-2, Open Sand Barren (SBO1), May 28, 2021.



Photo 14 Community 7, FOD5-2, Open Sand Barren (SBO1), July 7, 2021.



Photo 15 Trailer storage on southeast corner of Site, May 21, 2021.



Photo 16 Watercourse on adjacent lands currently dry, May 21, 2021.



Photo 17 Reach A, currently dry, June 7, 2021.



Photo 18 Reach B showing channel banks lined with gabion baskets, June 7, 2021.



Photo 19 Pathways and anthropogenic disturbance on Site, May 21, 2021.



Photo 20 Anthropogenic disturbance on Site, May 21, 2021.



Appendix D

Vegetation Species List



VEGETATION
COMMUNITY

CLASSIFICATION: FOM6-2

COMMUNITY #: 1

LOCATION: 50 Welham Rd,
Barrie

COORDINATES: 44.360263, -79.678188

PROJECT NUMBER: 13008-001

DATE: May 28 and
July 06, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Alex Kissel and Keegan
McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Allegheny Blackberry	<i>Rubus allegheniensis</i>	<i>Rosaceae</i>	3	2			S5
American Beech	<i>Fagus grandifolia</i>	<i>Fagaceae</i>	3	6			S4
Basswood	<i>Tilia americana</i>	<i>Tiliaceae</i>	3	4			S5
Black Cherry	<i>Prunus serotina</i> var. <i>serotina</i>	<i>Rosaceae</i>	3	3			S5
Black Raspberry	<i>Rubus occidentalis</i>	<i>Rosaceae</i>	5	2			S5
Canada Yew	<i>Taxus canadensis</i>	<i>Taxaceae</i>	3	7			S4
Chokecherry	<i>Prunus virginiana</i> var. <i>virginiana</i>	<i>Rosaceae</i>	3	2			S5
Common Lilac	<i>Syringa vulgaris</i>	<i>Oleaceae</i>	5				SNA
Eastern Hemlock	<i>Tsuga canadensis</i>	<i>Pinaceae</i>	3	7			S5
Eastern Hop-hornbeam	<i>Ostrya virginiana</i>	<i>Betulaceae</i>	3	4			S5
Eastern White Cedar	<i>Thuja occidentalis</i>	<i>Cupressaceae</i>	-3	4			S5
Eastern White Pine	<i>Pinus strobus</i>	<i>Pinaceae</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
European Swallowwort	<i>Vincetoxicum rossicum</i>	<i>Apocynaceae</i>	5				SNA
Herbaceous Carrionflower	<i>Smilax herbacea</i>	<i>Smilacaceae</i>	0	5			S4?
Large False Solomon's Seal	<i>Maianthemum racemosum</i>	<i>Liliaceae</i>	3	4			S5
Long-spurred Violet	<i>Viola rostrata</i>	<i>Violaceae</i>	3	6			S5
Manitoba Maple	<i>Acer negundo</i>	<i>Aceraceae</i>	0	0			S5
Northern Bush-honeysuckle	<i>Diervilla lonicera</i>	<i>Caprifoliaceae</i>	5	5			S5
Northern Red Oak	<i>Quercus rubra</i>	<i>Fagaceae</i>	3	6			S5
Poison Ivy	<i>Toxicodendron radicans</i>	<i>Anacardiaceae</i>	0	2			S5
Red Elderberry	<i>Sambucus racemosa</i> ssp. <i>pubens</i> var. <i>pubens</i>	<i>Caprifoliaceae</i>	3	5			S5
Red Maple	<i>Acer rubrum</i>	<i>Aceraceae</i>	0	4			S5
Red Pine	<i>Pinus resinosa</i>	<i>Pinaceae</i>	3	8			S5
Red Raspberry	<i>Rubus idaeus</i>	<i>Rosaceae</i>	3	2			S5

Red Trillium	<i>Trillium erectum</i>	Liliaceae	3	6			S5
Star-flowered False Solomon's Seal	<i>Maianthemum stellatum</i>	Liliaceae	0	6			S5
Sugar Maple	<i>Acer saccharum</i>	Aceraceae	3	4			S5
Tall Blue Lettuce	<i>Lactuca biennis</i>	Asteraceae	0	6			S5
Thicket Creeper	<i>Parthenocissus vitacea</i>	Vitaceae	3	4			S5
White Ash	<i>Fraxinus americana</i>	Oleaceae	3	4			S4
White Baneberry	<i>Actaea pachypoda</i>	Ranunculaceae	5	6			S5
White Elm	<i>Ulmus americana</i>	Ulmaceae	-3	3			S5
White Spruce	<i>Picea glauca</i>	Pinaceae	3	6			S5
Wild Lily-of-the-valley	<i>Maianthemum canadense</i> ssp. <i>canadense</i>	Liliaceae	3	5			S5

NOTES: Fresh-Moist Hemlock-Hardwood Mixed Forest



VEGETATION
COMMUNITY

CLASSIFICATION: FOD5-2

COMMUNITY #: 2

LOCATION: 50 Welham Rd,
Barrie

COORDINATES: 44.359331, -79.679015

PROJECT NUMBER: 13008-001

DATE: May 28 and
July 06, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Alex Kissel and Keegan
McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Allegheny Blackberry	<i>Rubus allegheniensis</i>	<i>Rosaceae</i>	3	2			S5
American Beech	<i>Fagus grandifolia</i>	<i>Fagaceae</i>	3	6			S4
Basswood	<i>Tilia americana</i>	<i>Tiliaceae</i>	3	4			S5
Black Cherry	<i>Prunus serotina</i> var. <i>serotina</i>	<i>Rosaceae</i>	3	3			S5
Black Raspberry	<i>Rubus occidentalis</i>	<i>Rosaceae</i>	5	2			S5
Bracken Fern	<i>Pteridium aquilinum</i>	<i>Dennstaedtiaceae</i>	3	2			S5
Chokecherry	<i>Prunus virginiana</i> var. <i>virginiana</i>	<i>Rosaceae</i>	3	2			S5
Common Lilac	<i>Syringa vulgaris</i>	<i>Oleaceae</i>	5				SNA
Eastern Hop-hornbeam	<i>Ostrya virginiana</i>	<i>Betulaceae</i>	3	4			S5
Eastern White Pine	<i>Pinus strobus</i>	<i>Pinaceae</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
European Swallowwort	<i>Vincetoxicum rossicum</i>	<i>Apocynaceae</i>	5				SNA
Herbaceous Carrionflower	<i>Smilax herbacea</i>	<i>Smilacaceae</i>	0	5			S4?
Large False Solomon's Seal	<i>Maianthemum racemosum</i>	<i>Liliaceae</i>	3	4			S5
Large-leaved Aster	<i>Eurybia macrophylla</i>	<i>Asteraceae</i>	5	5			S5
Long-spurred Violet	<i>Viola rostrata</i>	<i>Violaceae</i>	3	6			S5
Manitoba Maple	<i>Acer negundo</i>	<i>Aceraceae</i>	0	0			S5
Northern Bush-honeysuckle	<i>Diervilla lonicera</i>	<i>Caprifoliaceae</i>	5	5			S5
Northern Red Oak	<i>Quercus rubra</i>	<i>Fagaceae</i>	3	6			S5
Paper Birch	<i>Betula papyrifera</i>	<i>Betulaceae</i>	3	2			S5
Poison Ivy	<i>Toxicodendron radicans</i>	<i>Anacardiaceae</i>	0	2			S5
Red Elderberry	<i>Sambucus racemosa</i> ssp. <i>pubens</i> var. <i>pubens</i>	<i>Caprifoliaceae</i>	3	5			S5
Red Maple	<i>Acer rubrum</i>	<i>Aceraceae</i>	0	4			S5
Red Pine	<i>Pinus resinosa</i>	<i>Pinaceae</i>	3	8			S5
Red Raspberry	<i>Rubus idaeus</i>	<i>Rosaceae</i>	3	2			S5

Red Trillium	<i>Trillium erectum</i>	Liliaceae	3	6			S5
Staghorn Sumac	<i>Rhus typhina</i>	Anacardiaceae	3	1			S5
Star-flowered False Solomon's Seal	<i>Maianthemum stellatum</i>	Liliaceae	0	6			S5
Sugar Maple	<i>Acer saccharum</i>	Aceraceae	3	4			S5
Tall Blue Lettuce	<i>Lactuca biennis</i>	Asteraceae	0	6			S5
Thicket Creeper	<i>Parthenocissus vitacea</i>	Vitaceae	3	4			S5
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
White Ash	<i>Fraxinus americana</i>	Oleaceae	3	4			S4
White Baneberry	<i>Actaea pachypoda</i>	Ranunculaceae	5	6			S5
White Baneberry	<i>Actaea pachypoda</i>	Ranunculaceae	5	6			S5
White Elm	<i>Ulmus americana</i>	Ulmaceae	-3	3			S5
Wild Lily-of-the-valley	<i>Maianthemum canadense</i> ssp. <i>canadense</i>	Liliaceae	3	5			S5
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	Araliaceae	3	4			S5
Zigzag Goldenrod	<i>Solidago flexicaulis</i>	Asteraceae	3	6			S5

NOTES: Fresh Sugar Maple-Beech Deciduous Forest



VEGETATION
COMMUNITY

CLASSIFICATION: CUM1-1

COMMUNITY #: 3

LOCATION: 50 Welham Rd,
Barrie

COORDINATES: 44.359669, -79.677041

PROJECT NUMBER: 13008-001

DATE: May 28 and
July 06, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Alex Kissel, Keegan
McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
American Vetch	<i>Vicia americana</i>	Fabaceae	3	5			S5
Annual Fleabane	<i>Erigeron annuus</i>	Asteraceae	3	0			S5
Black Medick	<i>Medicago lupulina</i>	Fabaceae	3				SNA
Black Walnut	<i>Juglans nigra</i>	Juglandaceae	3	5			S4?
Black-eyed Susan	<i>Rudbeckia hirta</i> var. <i>pulcherrima</i>	Asteraceae	3	0			S5
Bull Thistle	<i>Cirsium vulgare</i>	Asteraceae	3				SNA
Canada Lettuce	<i>Lactuca canadensis</i>	Asteraceae	3	3			S5
Common Apple	<i>Malus pumila</i>	Rosaceae	5				SNA
Common Goatsbeard	<i>Aruncus dioicus</i> var. <i>vulgaris</i>	Rosaceae	3				SNA
Common Milkweed	<i>Asclepias syriaca</i>	Apocynaceae	5	0			S5
Common Mullein	<i>Verbascum thapsus</i> ssp. <i>thapsus</i>	Scrophulariaceae	5				SNA
Common Ragweed	<i>Ambrosia artemisiifolia</i>	Asteraceae	3	0			S5
Common Viper's Bugloss	<i>Echium vulgare</i>	Boraginaceae	5				SNA
Common Yarrow	<i>Achillea millefolium</i>	Asteraceae	3				SNA
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
European Swallowwort	<i>Vincetoxicum rossicum</i>	Apocynaceae	5				SNA
Garden Bird's-foot Trefoil	<i>Lotus corniculatus</i>	Fabaceae	3				SNA
Orange Daylily	<i>Hemerocallis fulva</i>	Liliaceae	5				SNA
Oxeye Daisy	<i>Leucanthemum vulgare</i>	Asteraceae	5				SNA
Red Raspberry	<i>Rubus idaeus</i>	Rosaceae	3	2			S5
Siberian Elm	<i>Ulmus pumila</i>	Ulmaceae	3				SNA
Smooth Brome	<i>Bromus inermis</i>	Poaceae	5				SNA
Spotted Knapweed	<i>Centaurea stoebe</i>	Asteraceae	5				SNA
Staghorn Sumac	<i>Rhus typhina</i>	Anacardiaceae	3	1			S5
Sulphur Cinquefoil	<i>Potentilla recta</i>	Rosaceae	5				SNA

Tall Goldenrod	<i>Solidago altissima</i>	Asteraceae	3	1			S5
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
Tufted Vetch	<i>Vicia cracca</i>	Fabaceae	5				SNA
Wild Carrot	<i>Daucus carota</i>	Apiaceae	5				SNA
Wild Chicory	<i>Cichorium intybus</i>	Asteraceae	5				SNA

NOTES: Mineral Cultural Meadow



VEGETATION
COMMUNITY

CLASSIFICATION: CUT

COMMUNITY #: 4

LOCATION: 50 Welham Rd,
Barrie

COORDINATES: 44.360166, -79.673356

PROJECT NUMBER: 13008-001

DATE: May 28 and
July 06, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Alex Kissel and Keegan
McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
American Vetch	<i>Vicia americana</i>	Fabaceae	3	5			S5
Annual Fleabane	<i>Erigeron annuus</i>	Asteraceae	3	0			S5
Black Locust	<i>Robinia pseudoacacia</i>	Fabaceae	3				SNA
Black Medick	<i>Medicago lupulina</i>	Fabaceae	3				SNA
Black-eyed Susan	<i>Rudbeckia hirta</i> var. <i>pulcherrima</i>	Asteraceae	3	0			S5
Bull Thistle	<i>Cirsium vulgare</i>	Asteraceae	3				SNA
Canada Lettuce	<i>Lactuca canadensis</i>	Asteraceae	3	3			S5
Common Dandelion	<i>Taraxacum officinale</i>	Asteraceae	3				SNA
Common Goatsbeard	<i>Aruncus dioicus</i> var. <i>vulgaris</i>	Rosaceae	3				SNA
Common Milkweed	<i>Asclepias syriaca</i>	Apocynaceae	5	0			S5
Common Mullein	<i>Verbascum thapsus</i> ssp. <i>thapsus</i>	Scrophulariaceae	5				SNA
Common Ragweed	<i>Ambrosia artemisiifolia</i>	Asteraceae	3	0			S5
Common Timothy	<i>Phleum pratense</i> ssp. <i>pratense</i>	Poaceae	3				SNA
Common Viper's Bugloss	<i>Echium vulgare</i>	Boraginaceae	5				SNA
Common Yarrow	<i>Achillea millefolium</i>	Asteraceae	3				SNA
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5
Eastern White Pine	<i>Pinus strobus</i>	Pinaceae	3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
European Swallowwort	<i>Vincetoxicum rossicum</i>	Apocynaceae	5				SNA
Garden Bird's-foot Trefoil	<i>Lotus corniculatus</i>	Fabaceae	3				SNA
Manitoba Maple	<i>Acer negundo</i>	Aceraceae	0	0			S5
Meadow Hawkweed	<i>Pilosella caespitosa</i>	Asteraceae	5				SNA
Orange Daylily	<i>Hemerocallis fulva</i>	Liliaceae	5				SNA
Orchard Grass	<i>Dactylis glomerata</i>	Poaceae	3				SNA
Oxeye Daisy	<i>Leucanthemum vulgare</i>	Asteraceae	5				SNA
Poison Ivy	<i>Toxicodendron radicans</i>	Anacardiaceae	0	2			S5

Red Raspberry	Rubus idaeus	Rosaceae	3	2			S5
Scots Pine	Pinus sylvestris var. sylvestris	Pinaceae	3				SNA
Siberian Elm	Ulmus pumila	Ulmaceae	3				SNA
Smooth Brome	Bromus inermis	Poaceae	5				SNA
Spotted Knapweed	Centaurea stoebe	Asteraceae	5				SNA
Staghorn Sumac	Rhus typhina	Anacardiaceae	3	1			S5
Sulphur Cinquefoil	Potentilla recta	Rosaceae	5				SNA
Tall Goldenrod	Solidago altissima	Asteraceae	3	1			S5
Tatarian Honeysuckle	Lonicera tatarica	Caprifoliaceae	3				SNA
Trembling Aspen	Populus tremuloides	Salicaceae	0	2			S5
Tufted Vetch	Vicia cracca	Fabaceae	5				SNA
White Elm	Ulmus americana	Ulmaceae	-3	3			S5
Wild Carrot	Daucus carota	Apiaceae	5				SNA
Wild Chicory	Cichorium intybus	Asteraceae	5				SNA

NOTES: Cultural Thicket



VEGETATION
COMMUNITY

CLASSIFICATION: CUW

COMMUNITY #: 5

LOCATION: 50 Welham Rd,
Barrie

COORDINATES: 44.358702, -79.675477

PROJECT NUMBER: 13008-001

DATE: May 28 and
July 06, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Alex Kissel and Keegan
McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Annual Fleabane	<i>Erigeron annuus</i>	Asteraceae	3	0			S5
Black Medick	<i>Medicago lupulina</i>	Fabaceae	3				SNA
Black-eyed Susan	<i>Rudbeckia hirta</i> var. <i>pulcherrima</i>	Asteraceae	3	0			S5
Canada Lettuce	<i>Lactuca canadensis</i>	Asteraceae	3	3			S5
Chokecherry	<i>Prunus virginiana</i> var. <i>virginiana</i>	Rosaceae	3	2			S5
Common Milkweed	<i>Asclepias syriaca</i>	Apocynaceae	5	0			S5
Common Mullein	<i>Verbascum thapsus</i> ssp. <i>thapsus</i>	Scrophulariaceae	5				SNA
Common Viper's Bugloss	<i>Echium vulgare</i>	Boraginaceae	5				SNA
Eastern Cottonwood	<i>Populus deltoids</i> ssp. <i>deltoides</i>	Salicaceae	0	4			S5
Eastern White Cedar	<i>Thuja occidentalis</i>	Cupressaceae	-3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
European Swallowwort	<i>Vincetoxicum rossicum</i>	Apocynaceae	5				SNA
Garden Bird's-foot Trefoil	<i>Lotus corniculatus</i>	Fabaceae	3				SNA
Garlic Mustard	<i>Alliaria petiolata</i>	Brassicaceae	0				
Manitoba Maple	<i>Acer negundo</i>	Aceraceae	0	0			S5
Oxeye Daisy	<i>Leucanthemum vulgare</i>	Asteraceae	5				SNA
Poison Ivy	<i>Toxicodendron radicans</i>	Anacardiaceae	0	2			S5
Red Pine	<i>Pinus resinosa</i>	Pinaceae	3	8			S5
Red Raspberry	<i>Rubus idaeus</i>	Rosaceae	3	2			S5
Scots Pine	<i>Pinus sylvestris</i> var. <i>syvestris</i>	Pinaceae	3				SNA
Siberian Elm	<i>Ulmus pumila</i>	Ulmaceae	3				
Smooth Brome	<i>Bromus inermis</i>	Poaceae	5				SNA
Staghorn Sumac	<i>Rhus typhina</i>	Anacardiaceae	3	1			S5
Sugar Maple	<i>Acer saccharum</i>	Aceraceae	3	4			S5
Sulphur Cinquefoil	<i>Potentilla recta</i>	Rosaceae	5				SNA
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5

Tufted Vetch	Vicia cracca	Fabaceae	5				SNA
Wild Carrot	Daucus carota	Apiaceae	5				SNA

NOTES: Cultural Woodland



VEGETATION
COMMUNITY

CLASSIFICATION: CUP3-1

COMMUNITY #: 6

LOCATION: 50 Welham Rd,
Barrie

COORDINATES: 44.359496, -79.672485

PROJECT NUMBER: 13008-001

DATE: May 28 and
July 06, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Alex Kissel and Keegan
McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Alternate-leaved Dogwood	<i>Cornus alternifolia</i>	Cornaceae	3	6			S5
Basswood	<i>Tilia americana</i>	Tiliaceae	3	4			S5
Bittersweet Nightshade	<i>Solanum dulcamara</i>	Solanaceae	0				SNA
Black Cherry	<i>Prunus serotina</i> var. <i>serotina</i>	Rosaceae	3	3			S5
Bracken Fern	<i>Pteridium aquilinum</i>	Dennstaedtiaceae	3	2			S5
Chokecherry	<i>Prunus virginiana</i> var. <i>virginiana</i>	Rosaceae	3	2			S5
Common Dandelion	<i>Taraxacum officinale</i>	Asteraceae	3				SNA
Eastern White Pine	<i>Pinus strobus</i>	Pinaceae	3	4			S5
European Buckthorn	<i>Rhamnus cathartica</i>	Rhamnaceae	0				SNA
European Swallowwort	<i>Vincetoxicum rossicum</i>	Apocynaceae	5				SNA
Field Horsetail	<i>Equisetum arvense</i>	Equisetaceae	0	0			S5
Garlic Mustard	<i>Alliaria petiolata</i>	Brassicaceae	0				SNA
Poison Ivy	<i>Toxicodendron radicans</i>	Anacardiaceae	0	2			S5
Red Pine	<i>Pinus resinosa</i>	Pinaceae	3	8			S5
Red Raspberry	<i>Rubus idaeus</i>	Rosaceae	3	2			S5
Scots Pine	<i>Pinus sylvestris</i> var. <i>syvestris</i>	Pinaceae	3				SNA
Sugar Maple	<i>Acer saccharum</i>	Aceraceae	3	4			S5
Thicket Creeper	<i>Parthenocissus vitacea</i>	Vitaceae	3	4			S5
Trembling Aspen	<i>Populus tremuloides</i>	Salicaceae	0	2			S5
White Ash	<i>Fraxinus americana</i>	Oleaceae	3	4			S4
White Trillium	<i>Trillium grandiflorum</i>	Liliaceae	3	5			S5
Wild Lily-of-the-valley	<i>Maianthemum canadense</i> <i>ssp. canadense</i>	Liliaceae	3	5			S5
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	Araliaceae	3	4			S5

NOTES: Red Pine Coniferous Plantation



Appendix E

Fish Species List

Table 1 - 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	-	-	-	med	high	med	-	-	-
Centrarchidae	Black Crappie	<i>Pomoxis nigromaculatus</i>	S4			Tolerant	Coolwater	May-June	X	X	X	-	high	high	-	-	-	-	high	high	high	-	-
Centrarchidae	Pumpkinseed	<i>Lepomis gibbosus</i>	S5			Intermediate	Warmwater	May-August	X	X	-	-	high	high	-	-	-	-	high	high	-	med	-
Centrarchidae	Rock Bass	<i>Ambloplites rupestris</i>	S5			Intermediate	Coolwater	May-June	X	X	-	-	low	low	-	-	high	high	high	med	med	-	-
Centrarchidae	Smallmouth Bass	<i>Micropterus dolomieu</i>	S5			Intermediate	Coolwater	May-June	X	X	-	-	low	low	med	-	-	high	high	high	-	-	-
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	Bluntnose Minnow	<i>Pimephales notatus</i>	S5			Intermediate	Warmwater	June-August	X	X	X	-	medium	medium	-	med	med	high	high	med	-	-	-
Cyprinidae	Creek Chub	<i>Semotilus atromaculatus</i>	S5			Intermediate	Coolwater	May-June	X	-	-	-	-	-	-	-	-	high	high	high	-	-	-
Cyprinidae	Blacknose Dace	<i>Rhinichthys atratulus</i>	S5			Intermediate	Coolwater	May-June	X	-	-	-	-	-	-	-	-	high	high	med	-	-	-
Cyprinidae	Golden Shiner	<i>Notemigonus crysoleucas</i>	S5			Intermediate	Coolwater	June-August	X	X	-	-	high	high	-	-	-	-	high	high	-	-	-
Cyprinidae	Longnose Dace	<i>Rhinichthys cataractae</i>	S5			Intermediate	Coolwater	May-July	X	X	-	-	-	-	-	-	-	med	high	high	med	-	-
Cyprinidae	Northern Redbelly Dace	<i>Phoxinus eos</i>	S5			Intermediate	Coolwater	May-July	X	X	-	-	high	-	-	-	-	med	high	high	-	-	-
Cyprinidae	Spottail Shiner	<i>Notropis hudsonius</i>	S5			Intermediate	Coolwater	May-June	X	X	X	-	medium	medium	-	-	med	med	high	high	-	-	-
Cyprinidae	Emerald Shiner	<i>Notropis atherinoides</i>	S5			Intermediate	Coolwater	June-August	-	-	-	-	low	low	-	med	med	high	high	high	-	-	-
Osmeridae	Rainbow Smelt	<i>Osmerus mordax</i>	S5			Intermediate	Coldwater	March-April	X	X	X	X	low	low	-	med	med	high	high	high	low	-	-
Percidae	Yellow Perch	<i>Perca flavescens</i>	S5			Intermediate	Coolwater	April-May	X	X	X	X	medium	medium	-	-	-	med	high	high	med	med	-
Percidae	Iowa Darter	<i>Etheostoma exile</i>	S5			Intermediate	Coolwater	April-June	X	-	-	-	medium	medium	-	-	-	high	high	high	high	-	-
Percidae	Logperch	<i>Percina caprodes</i>	S5			Intolerant	Warmwater	May-June	X	X	-	-	-	-	-	med	med	high	high	high	-	-	-
Salmonidae	Brook Trout	<i>Salvelinus fontinalis fontinalis</i>	S5			Intolerant	Coldwater	September-November	X	X	-	-	-	-	-	-	-	high	high	med	low	-	-
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: 50 Welham Dr

COORDINATES: 44.3618743,
-79.6672259

POINT COUNT #: 1

PROJECT NUMBER: 13008-001

DATES: May 31, 2021
June 07, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Mackenzie Soden

FIELD SHEET – Bird Species List

May 31, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
Blue Jay	<i>Cyanocitta cristata</i>	<i>Corvidae</i>			S5	H
Carolina Chickadee	<i>Poecile carolinensis</i>	<i>Paridae</i>			SNA	H
Eastern Phoebe	<i>Sayornis phoebe</i>	<i>Tyrannidae</i>			S5B	H
Field Sparrow	<i>Spizella pusilla</i>	<i>Passerellidae</i>			S4B	S
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	<i>Tyrannidae</i>			S4B	H
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	S
Indigo Bunting	<i>Passerina cyanea</i>	<i>Cardinalidae</i>			S4B	S
Northern Cardinal	<i>Cardinalis cardinalis</i>	<i>Cardinalidae</i>			S5	S
Pine Warbler	<i>Setophaga pinus</i>	<i>Parulidae</i>			S5B	S
Song Sparrow	<i>Melospiza melodia</i>	<i>Passerellidae</i>			S5B	S
Wild Turkey	<i>Meleagris gallopavo</i>	<i>Phasianidae</i>			S5	S

June 07, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	<i>Corvus brachyrhynchos</i>	<i>Corvidae</i>			S5B	X
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
Black-capped Chickadee	<i>Poecile atricapillus</i>	<i>Paridae</i>			S5	D
Brown-headed Cowbird	<i>Molothrus ater</i>	<i>Icteridae</i>			S4B	S
Chipping Sparrow	<i>Spizella passerina</i>	<i>Passerellidae</i>			S5B	S
Field Sparrow	<i>Spizella pusilla</i>	<i>Passerellidae</i>			S4B	T
Pine Warbler	<i>Setophaga pinus</i>	<i>Parulidae</i>			S5B	T
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

A = Agitated behaviour or anxiety calls of an adult
B = Brood patch on adult female or cloacal protuberance on adult male

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

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 level on May 31, 2021. Moderate noise, light wind on June 07, 2021.

VEGETATION COMMUNITY PHOTOS:

May 31, 2021



June 07, 2021





VEGETATION
COMMUNITY
CLASSIFICATION:

Cultural
Woodland

LOCATION: 50 Welham Dr

COORDINATES: 44.3616832,
-79.674713

POINT COUNT
#: 2

PROJECT NUMBER: 13008-001

DATES: May 31, 2021
June 07, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Mackenzie Soden

FIELD SHEET – Bird Species List

May 31, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
Black-capped Chickadee	<i>Poecile atricapillus</i>	<i>Paridae</i>			S5	H
Canada Goose	<i>Branta canadensis</i>	<i>Anatidae</i>			S5	X
Cedar Waxwing	<i>Bombycilla cedrorum</i>	<i>Bombycillidae</i>			S5B	H
Chimney Swift	<i>Chaetura pelagica</i>	<i>Apodidae</i>	THR	THR	S4B,S4N	X
Common Grackle	<i>Quiscalus quiscula</i>	<i>Icteridae</i>			S5B	H
Downy Woodpecker	<i>Picoides pubescens</i>	<i>Picidae</i>			S5	P
Field Sparrow	<i>Spizella pusilla</i>	<i>Passerellidae</i>			S4B	S
Indigo Bunting	<i>Passerina cyanea</i>	<i>Cardinalidae</i>			S4B	S
Red-eyed Vireo	<i>Vireo olivaceus</i>	<i>Vireonidae</i>			S5B	S
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	<i>Trochilidae</i>			S5B	H
White-breasted Nuthatch	<i>Sitta carolinensis</i>	<i>Sittidae</i>			S5	H

June 07, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	<i>Corvus brachyrhynchos</i>	<i>Corvidae</i>			S5B	H
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
American Robin	<i>Turdus migratorius</i>	<i>Turdidae</i>			S5B	H
Black-capped Chickadee	<i>Poecile atricapillus</i>	<i>Paridae</i>			S5	H
Downy Woodpecker	<i>Picoides pubescens</i>	<i>Picidae</i>			S5	H
Field Sparrow	<i>Spizella pusilla</i>	<i>Passerellidae</i>			S4B	T
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	<i>Tyrannidae</i>			S4B	S
Red-eyed Vireo	<i>Vireo olivaceus</i>	<i>Vireonidae</i>			S5B	T
Song Sparrow	<i>Melospiza melodia</i>	<i>Passerellidae</i>			S5B	S

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, some people with unleashed dogs (got sniffed during protocol), light winds on May 31, 2021. Moderate noise, light wind on June 07, 2021.

VEGETATION COMMUNITY PHOTOS:

May 31, 2021



June 07, 2021





VEGETATION
COMMUNITY

CLASSIFICATION: Woodland

LOCATION: 50 Welham Dr

COORDINATES: 44.3598332,
-79.6752461

POINT COUNT #: 3

PROJECT NUMBER: 13008-001

DATES: May 31, 2021
June 07, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Mackenzie Soden

FIELD SHEET – Bird Species List

May 31, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Robin	<i>Turdus migratorius</i>	<i>Turdidae</i>			S5B	H
Blue Jay	<i>Cyanocitta cristata</i>	<i>Corvidae</i>			S5	H
Canada Goose	<i>Branta canadensis</i>	<i>Anatidae</i>			S5	X
Common Yellowthroat	<i>Geothlypis trichas</i>	<i>Parulidae</i>			S5B	X
Field Sparrow	<i>Spizella pusilla</i>	<i>Passerellidae</i>			S4B	S
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	S
Indigo Bunting	<i>Passerina cyanea</i>	<i>Cardinalidae</i>			S4B	S
Pine Warbler	<i>Setophaga pinus</i>	<i>Parulidae</i>			S5B	S
Red-eyed Vireo	<i>Vireo olivaceus</i>	<i>Vireonidae</i>			S5B	S
Song Sparrow	<i>Melospiza melodia</i>	<i>Passerellidae</i>			S5B	S

June 07, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	<i>Corvus brachyrhynchos</i>	<i>Corvidae</i>			S5B	H
Black-capped Chickadee	<i>Poecile atricapillus</i>	<i>Paridae</i>			S5	H
Chipping Sparrow	<i>Spizella passerina</i>	<i>Passerellidae</i>			S5B	S
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	<i>Tyrannidae</i>			S4B	S
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	T
Pine Warbler	<i>Setophaga pinus</i>	<i>Parulidae</i>			S5B	T
Red-eyed Vireo	<i>Vireo olivaceus</i>	<i>Vireonidae</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

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

X = Species observed in its breeding season (no breeding evidence)
CF= Adult carrying food for young
NE= Nest containing eggs

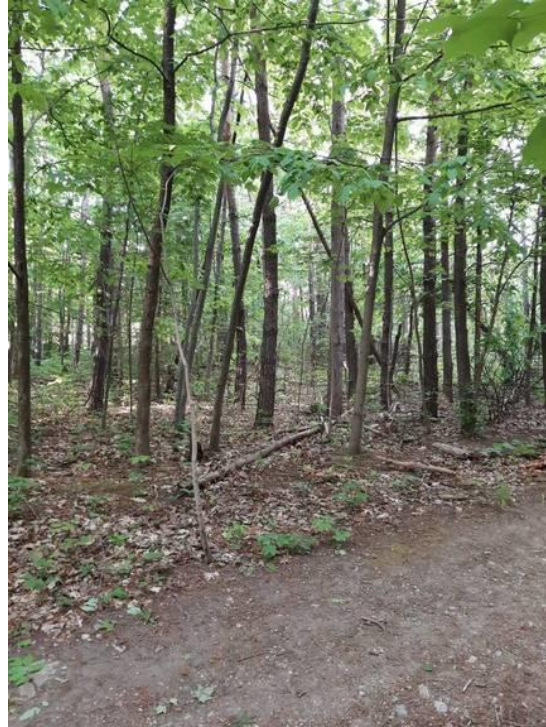
FS= Adult carrying faecal sac
NY= Nest with young seen or heard

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

NOTES: Low to moderate noise on May 31, 2021. Moderate to high noise from traffic and wind, moderate wind on June 07, 2021.

VEGETATION COMMUNITY PHOTOS:

May 31, 2021



June 07, 2021





VEGETATION
COMMUNITY
CLASSIFICATION:

Cultural
Woodland

LOCATION: 50 Welham Rd

COORDINATES: 44.3405924,
-79.6840627

POINT COUNT
#: 4

PROJECT NUMBER: 13008-001

DATES: May 31, 2021
June 07, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Mackenzie Soden

FIELD SHEET – Bird Species List

May 31, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	<i>Corvus brachyrhynchos</i>	<i>Corvidae</i>			S5B	X
Black-capped Chickadee	<i>Parus atricapillus</i>	<i>Paridae</i>			S5	H
Black-throated Green Warbler	<i>Setophaga virens</i>	<i>Parulidae</i>			S5B	S
Chipping Sparrow	<i>Spizella passerina</i>	<i>Passerellidae</i>			S5B	H
European Starling	<i>Sturnus vulgaris</i>	<i>Sturnidae</i>			SNA	H
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	<i>Tyrannidae</i>			S4B	H
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	S
Mallard	<i>Anas platyrhynchos</i>	<i>Anatidae</i>			S5	X
Red-breasted Nuthatch	<i>Sitta canadensis</i>	<i>Sittidae</i>			S5	H

June 07, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	<i>Corvus brachyrhynchos</i>	<i>Corvidae</i>			S5B	H
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
Brown-headed Cowbird	<i>Molothrus ater</i>	<i>Icteridae</i>			S4B	S
Field Sparrow	<i>Spizella pusilla</i>	<i>Passerellidae</i>			S4B	S
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	<i>Tyrannidae</i>			S4B	P
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	T
Pine Warbler	<i>Setophaga pinus</i>	<i>Parulidae</i>			S5B	S
Red-eyed Vireo	<i>Vireo olivaceus</i>	<i>Vireonidae</i>			S5B	S

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

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V = Visiting probable nest site

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

X = Species observed in its breeding season (no breeding evidence)
CF= Adult carrying food for young
NE= Nest containing eggs

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 level on May 31, 2021. Moderate to high noise from traffic, low wind on June 07, 2021.

VEGETATION COMMUNITY PHOTOS:

May 31, 2021



June 07, 2021





VEGETATION
COMMUNITY
CLASSIFICATION:

Cultural
Woodland

LOCATION: 50 Welham Rd

COORDINATES: 44.3593639,
-79.6772397

POINT COUNT
#: 5

PROJECT NUMBER: 13008-001

DATES: May 31, 2021
June 07, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Mackenzie Soden

FIELD SHEET – Bird Species List

May 31, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	<i>Corvus brachyrhynchos</i>	<i>Corvidae</i>			S5B	H
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
Black-capped Chickadee	<i>Poecile atricapillus</i>	<i>Paridae</i>			S5	H
Downy Woodpecker	<i>Picoides pubescens</i>	<i>Picidae</i>			S5	H
Field Sparrow	<i>Spizella pusilla</i>	<i>Passerellidae</i>			S4B	S
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	<i>Tyrannidae</i>			S4B	H
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	S
Indigo Bunting	<i>Passerina cyanea</i>	<i>Cardinalidae</i>			S4B	S
Red-eyed Vireo	<i>Vireo olivaceus</i>	<i>Vireonidae</i>			S5B	S
Song Sparrow	<i>Melospiza melodia</i>	<i>Passerellidae</i>			S5B	D

June 07, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	<i>Corvus brachyrhynchos</i>	<i>Corvidae</i>			S5B	H
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
Black-capped Chickadee	<i>Poecile atricapillus</i>	<i>Paridae</i>			S5	CF
Brown-headed Cowbird	<i>Molothrus ater</i>	<i>Icteridae</i>			S4B	S
Eastern Kingbird	<i>Tyrannus tyrannus</i>	<i>Tyrannidae</i>			S4B	S
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	<i>Tyrannidae</i>			S4B	S
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	T
Indigo Bunting	<i>Passerina cyanea</i>	<i>Cardinalidae</i>			S4B	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

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)

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

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 on May 31, 2021. Moderate to high noise from traffic, low wind on June 07, 2021.

VEGETATION COMMUNITY PHOTOS:

May 31, 2021



June 07, 2021





VEGETATION
COMMUNITY
CLASSIFICATION:

Cultural
Woodland

LOCATION: 50 Welham Rd

COORDINATES: 44.3562929,
-79.6830105

POINT COUNT
#: 6

PROJECT NUMBER: 13008-001

DATES: May 31, 2021
June 07, 2021

PROJECT
MANAGER: Jeremy Prah

FIELD STAFF: Mackenzie Soden

FIELD SHEET – Bird Species List

May 31, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	<i>Corvus brachyrhynchos</i>	<i>Corvidae</i>			S5B	X
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
Black-capped Chickadee	<i>Poecile atricapillus</i>	<i>Paridae</i>			S5	H
Chipping Sparrow	<i>Spizella passerina</i>	<i>Passerellidae</i>			S5B	S
Common Grackle	<i>Quiscalus quiscula</i>	<i>Icteridae</i>			S5B	H
European Starling	<i>Sturnus vulgaris</i>	<i>Sturnidae</i>			SNA	H
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	<i>Tyrannidae</i>			S4B	H
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	S
Indigo Bunting	<i>Passerina cyanea</i>	<i>Cardinalidae</i>			S4B	S
Red-eyed Vireo	<i>Vireo olivaceus</i>	<i>Vireonidae</i>			S5B	S
Song Sparrow	<i>Melospiza melodia</i>	<i>Passerellidae</i>			S5B	S

June 07, 2021						
Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Goldfinch	<i>Spinus tristis</i>	<i>Fringillidae</i>			S5B	H
American Robin	<i>Turdus migratorius</i>	<i>Turdidae</i>			S5B	H
Brown-headed Cowbird	<i>Molothrus ater</i>	<i>Icteridae</i>			S4B	S
Downy Woodpecker	<i>Picoides pubescens</i>	<i>Picidae</i>			S5	H
Field Sparrow	<i>Spizella pusilla</i>	<i>Passerellidae</i>			S4B	S
House Wren	<i>Troglodytes aedon</i>	<i>Troglodytidae</i>			S5B	T
Red-eyed Vireo	<i>Vireo olivaceus</i>	<i>Vireonidae</i>			S5B	T
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	<i>Icteridae</i>			S4	X

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

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

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

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 level on May 31, 2021. Moderate to high noise from traffic, light wind on June 07, 2021.

VEGETATION COMMUNITY PHOTOS:

May 31, 2021



June 07, 2021





Appendix G

Significant Wildlife Habitat Assessment



SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes
Seasonal Concentration Areas of Animals					
Waterfowl Stopover and Staging Areas (Terrestrial)	Ducks	Cultural Ecosites: CUM1, CUT1	Fields that flood during spring (mid-March to May).	N	N/A
Waterfowl Stopover and Staging Area (Aquatic)	Ducks, Geese	Marshes, Swamps, Shallow Water Ecosites: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, SWD1 to SWD7,	Ponds, marshes, lakes, bays, coastal inlets, and watercourses. Sewage treatment ponds and storm water ponds not SWH. Reservoir managed as a large wetland or pond/lake qualifies.	N	N/A
Shorebird Migratory Stopover Area	Shorebirds	Beaches, Dunes, Meadow Marshes: BBO1, BBO2, BBS1, BBS2, BBT1, BBT2, SDO1, SDS2, SDT1, MAM1 to MAMS	Shorelines of lakes, rivers and wetlands. Sewage treatment ponds and storm water ponds not SWH.	N	N/A
Raptor Wintering Area	Eagles, Hawks, Owls	Hawks/Owls - Combination of Forest and Cultural Ecosites: FOD, FOM, FOC, CUM, CUT, CUS, CUW Bald Eagle: Forest or swamp close to open water (hunting ground): FOD, FOM, FOC, SWD, SWM, SWC	Raptor wintering sites: >20ha, with a combination of forest and upland. Idle/Fallow/Meadow (>15ha) with adjacent woodlands. Eagle sites: open water, large trees and snags for roosting.	N	N/A
Bat Hibernacula	Big Brown Bat, Tri-coloured Bat	Caves, Crevices: CCR1, CCR2, CCA1, CCA2	Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. Buildings and active mine sites not SWH.	N	N/A
Bat Maternity Colonies	Big Brown Bat, Silver-haired Bat	Deciduous or mixed forests and swamps: FOD, FOM, SWD, SWM	Mature deciduous and mixed forest stands with >10/ha; large trees >25 cm DBH with cavities.	N	Field investigation determined that while some potential trees are present, the forest community did not contain them in sufficient density to be classified as SWH.
Turtle Wintering Area	Turtles	SW, MA, OA, SA, FEO, BOO	Free water beneath ice. Soft mud substrate. Permanent water bodies, large wetlands, bogs, fens with adequate DO.	N	N/A
Reptile Hibernaculum	Snakes	Habitat may be found in any ecosite other than very wet ones. Five-lined Skink: FOD and FOM, FOC1, FOC3	Below frost line in burrows, rock crevices, rock piles or slopes, stone fences, abandoned stone foundations. Conifer or shrub swamps/swales, poor fens, depressions in bedrock with accumulations of sphagnum moss or sedge hummock ground cover. Skink: mixed forest with rock outcrop openings; granite bedrock with fissures.	N	Field investigations confirmed that there are no areas with extensive rock piles or slopes, old stone fences, etc. that would provide hibernaculum sites for reptiles.
Colonially-nesting Bird Breeding Habitat (Bank and Cliff)	Cliff Swallow, Northern Rough-winged Swallow	Eroding banks, sandy hills/piles, burrow pits, steep slopes, cliff faces, bridge abutments, silos, barns. CUM1, CUT1, CUS1, BLO1, BLS1, BLT1, CLO1, CLS1, CLT1	Exposed soil banks, not a licensed/permitted aggregate area. Does not include man-made structures (bridges or buildings), or recently (2 yrs) disturbed soil areas (berms, embankments, soil/aggregate stockpiles).	N	N/A
Colonially-nesting Bird Breeding Habitat (Tree/Shrubs)	Great Blue Heron, Black-crowned Night Heron, Great Egret, Green Heron	SWM2, SWM3, SWM5, SWM6, SWD1 to SWD7, FET1	Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and emergents may be used. Nests in trees are 11 to 15 m from ground, near top of the tree.	N	N/A
Colonially-nesting Bird Breeding Habitat (Ground)	Herring Gull, Great Black-backed Gull, Little Gull, Ring-billed Gull, Common Tern, Caspian Tern, Brewer's Blackbird	Rocky island or peninsula in lake or river. Close to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). MAM1 – 6; MAS1 – 3; CUM, CUT, CUS	Gulls and terns nesting on islands or peninsulas with open water or marshy areas. Brewer's Blackbird colonies are found on the ground in low bushes close to streams and irrigation ditches within farmlands.	N	N/A
Migratory Butterfly Stopover Area	Painted Lady, Red Admiral, Special Concern: Monarch	Combination of open and forested ecosites (need one from each). Field: CUM, CUT, CUS Forest: FOC, FOD, FOM, CUP	Minimum of 10 ha, located within 5 km of Lake Ontario. Combination of field and forest, undisturbed sites, with flowering species (preferred nectar plants).	N	N/A
Landbird Migratory Stopover Areas	All migratory songbirds. All migrant raptor species.	FOC, FOM, FOD, SWC, SWM, SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. If multiple woodlands are located along the shoreline, those Woodlands <2km from Lake Ontario are more significant. Include a variety of habitats; forest, grassland and wetlands.	N	N/A
Deer Yarding Areas	White-tailed Deer	FOM, FOC, SWM, SWC, CUP2, CUP3, FOD3, CUT	Stratum I: core deer yard - coniferous forest; 60% canopy cover with pine, hemlock, cedar, spruce. Stratum II: mixed or deciduous forest with plenty of browse available, may include agricultural areas.	N	N/A



SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes
Deer Wintering Congregation Areas	White-tailed Deer	FOC, FOM, FOD, SWC, SWM, SWD	When movement is not constrained by snow depth (20cm) Woodlots > 100 ha and used annually.	N	N/A
Rare Vegetation Communities					
Cliffs and Talus Slopes		TAO, TAS, CLO, CLS, TAT, CLT	Cliff: near vertical bedrock >3m in height; Talus Slope: coarse rock rubble at the base of a cliff	N	N/A
Sand Barren		SBO1, SBS1, SBT1	Sand Barrens >0.5 ha. Vegetation can vary from patchy and barren to continuous meadow, thicket-like, or tree covered (less than 60%). Less than 50% vegetation cover are exotic species.	N	None of the SBO1 vegetation communities onsite are of sufficient size (0.5ha). Communities range from 0.03 to 0.3 ha in size.
Alvar	<i>Indicator species: Carex crawei, Panicum philadelphicum, Eleocharis compressa, Scutellaria parvula, Trichostema brachiatum, Loggerhead Shrike</i>	ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2	Alvar >0.5 ha. Level, mostly unfractured calcareous bedrock with mosaic or rock pavements and bedrock overlain with thin veneer of soil. Vegetation cover varies from patchy to barren with <60% tree cover.	N	N/A
Old Growth Forest		FOD, FOC, FOM, SWD, SWC, SWM	Woodland areas 30 ha or greater or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.	N	N/A
Savannah		TPS1, TPS2, TPW1, TPW2, CUS2	No minimum size; A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60% with less than 50% cover of exotic species. Remnant sites (railway right-of-ways) are not SWH.	N	N/A
Tallgrass Prairie		TPO1, TPO2	No minimum size; An open Tallgrass Prairie habitat has < 25% tree cover. Less than 50% cover of exotic species. Remnant sites (railway right-of-ways) are not SWH.	N	N/A
Other Rare Vegetation Communities		Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps. Review Appendix M	N	N/A
Specialized Habitat for Wildlife					
Waterfowl Nesting Area	Ducks	Upland habitats adjacent to: MAS1 to MAS3, SAS1, SAM1, SAF1, MAM1 to MAM6, SWT1, SWT2, SWD1 to SWD4	Extends 120 m from a wetland or wetland complex. Upland areas should be at least 120 m wide. Wood Ducks and Hooded Mergansers use cavity trees (>40cm dbh) in woodlands.	N	N/A
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Osprey, Bald Eagle	FOD, FOM, FOC, SWD, SWM, SWC directly adjacent to riparian areas	Nesting areas are associated with waterbodies along forested shorelines, islands, or on structures over water.	N	N/A
Woodland Raptor Nesting Habitat	Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Barred Owl, Broad-winged Hawk	All forested ELC ecosites. Forests, swamps, and conifer plantations: FOD, FOM, FOC, SWD, SWM, SWC, CUP3	Natural or conifer plantation woodland/forest stands >30 ha with > 10 ha interior habitat. Stick nests.	N	Insufficient interior habitat on Site.
Turtle Nesting Areas	Midland Painted Turtle, Snapping Turtle, Northern Map Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within: MAS1 to MAS3, SAS1, SAM1, SAF1, BOO1	Nest sites close to water, within open sunny areas with soil suitable for digging. Sand and gravel beaches. Nesting areas on sides of roads are not SWH.	N	N/A
Seeps and Springs	Wild Turkey, Ruffed Grouse, Spruce Grouse, White-tailed Deer, Salamander spp.	Seeps/Springs are areas where ground water comes to the surface.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream/river system.	N	N/A
Amphibian Breeding Habitat (Woodland)	Woodland Frogs and Salamanders	FOC, FOM, FOD, SWC, SWM, SWD	Wetland, pond or woodland pool of >500 m ² within or adjacent (within 120m) to wooded areas (no min. size). Woodlands with permanent ponds or those containing water until mid-July are preferred.	N	N/A
Amphibian Breeding Habitat (Wetlands)	Toads, Frogs, and Salamanders	SW, MA, FE, BO, OA and SA. Typically isolated (>120m) from woodland ecosites, however larger wetlands may be adjacent to woodlands.	Wetlands >500m ² isolated from woodland ecosites with high species diversity. Permanent water bodies with abundant vegetation for bullfrogs.	N	N/A



SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes
Woodland Area-Sensitive Bird Breeding Habitat	Birds: Yellow-bellied Sapsucker Red-breasted Nuthatch, Veery, Blue-headed Vireo, Northern Parula, Black-throated Green Warbler, Blackburnian Warbler, Black-throated Blue Warbler, Ovenbird, Scarlet Tanager, Winter Wren, <u>Special Concern:</u> _____ Cerulean Warbler Canada Warbler	FOC, FOM, FOD, SWC, SWM, SWD	Large mature (>60 years) forest stands or woodlots > 30 ha. Interior forest habitat of >200 m from forest edge.	N	Breeding Bird Surveys determined that none of the indicator species were documented with probable/confirmed breeding evidence.
Habitat of Species of Conservation Concern					
Marsh Bird Breeding Habitat	American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Marsh Wren, Sedge Wren, Common Loon, Sandhill Crane, Green Heron, Trumpeter Swan	MAM1 to MAM6, SAS1, SAM1, SAF1, FEO1, BOO1 For Green Heron: SW, MA and CUM1 sites.	Wetlands with shallow water and emergent aquatic vegetation.	N	N/A
Open Country Bird Breeding Habitat	Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, Northern Harrier, Savannah Sparrow, Short-eared Owl	CUM1, CUM2	Grassland/meadow >30 ha. Not being actively used for farming. Habitat established for 5 years or more.	N	No qualifying vegetation communities of sufficient size on or adjacent to Site.
Shrub/Early Successional Bird Breeding Habitat	Brown Thrasher, Clay-coloured Sparrow, Field Sparrow, Black- billed Cuckoo, Eastern Towhee, Willow Flycatcher, Yellow-breasted Chat, Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2	Large field areas succeeding to shrub and thicket habitats > 10 ha. Areas not actively used for farming in the last 5 years.	N	No qualifying vegetation communities of sufficient size on or adjacent to Site.
Terrestrial Crayfish	Chimney or Digger Crayfish; (<i>Fallicambarus fodiens</i>) Devil Crayfish or Meadow Crayfish; (<i>Cambarus Diogenes</i>)	MAM1 to MAM6, MAS1 to MAS3, SWD, SWT, SWM, CUM1 sites with inclusions of the aforementioned.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish	N	N/A
Special Concern and Rare Wildlife Species	Any species of concern or rare wildlife species (S1-S3, SH) plant and animal.	Any ELC code.	Presence of species of concern or rare wildlife species identified within 1 or 10 km grid (NHIC).	N	See Species at Risk Screening Section.



Appendix H

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	SC	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
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).	Yes: on-site and adjacent lands	Confirmed absent through targeted surveys	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>Antrastomus 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 understorey 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
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	SC	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

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
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).	Yes: on-site and adjacent lands	Confirmed absent through targeted surveys	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
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>	END	END	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 as 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
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								

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COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
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
Deepwater Sculpin	<i>Myoxocephalus thompsonii</i>	SC	-	S1	The Deepwater Sculpin grows up to 8 cm in length, and has eyes on top of its head, a large mouth, three dark bands on its pectoral fins, and lacks true scales. This species inhabits the bottoms of cold, highly oxygenated lakes (2).	No	Known to occur in the general area	No further consideration required
Grass Pickerel	<i>Esox americanus</i>	SC	SC	S3	Like other members of the pike family, the Grass Pickerel has a long, cylindrical body with a long snout and forked tail. Colouration may vary, but often consists of several thin, dark, wavy vertical bars along the sides. The fins are dusky to yellow-green. Adults have a dark bar extending below the eye. Grass Pickerel are found in wetlands, pond, slow moving streams and shallow bays of larger lakes with warm, shallow, clear water and abundant aquatic vegetation. In Ontario, Grass Pickerel is found in coastal wetlands in the Great Lakes and tributaries of Lake St. Clair, Lake Erie, Lake Huron, the Niagara River, Lake Ontario and the St. Lawrence River, and inland in the Severn River system (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
Nothern Brook Lamprey	<i>Ichthyomyzon fossor</i>	SC	SC	S3	The Northern Brook Lamprey is a small, elongate fish growing up to 16 cm long with a round, jawless mouth, seven gill openings, and no pectoral or pelvic fins. This species has a larval stage, in which they require soft substrates for burrowing and typically use slow-moving portions of coolwater streams, and an adult stage, in which they are more typically associated with fast flowing ripples in coolwater streams with rock or gravel bottoms (1).	No	Known to occur in the general area	No further consideration required
Northern Sunfish (Great Lakes - Upper St. Lawrence population)	<i>Lepomis peltastes</i>	SC	SC	S3	The Northern Sunfish is a small (about 130 mm long), typical looking member of the sunfish family (Centrarchidae). It has a deep, laterally compressed and olive coloured body with bright blue and red markings. In Ontario, the Northern Sunfish lives in shallow vegetated areas of quiet, slow flowing rivers and streams, as well as warm lakes and ponds, with sandy banks or rocky bottoms. Northern Sunfish prefer to be near aquatic vegetation where they can avoid strong currents. The Great Lakes - Upper St. Lawrence Populations are found throughout southern Ontario including waters flowing into Lake Huron, Georgian Bay, Lake St. Clair, Lake Erie and Lake Ontario, as well as rivers and small lakes in eastern Ontario (1).	No	Known to occur in the general area	No further consideration required
Silver Lamprey (Great Lakes - Upper St. Lawrence River population)	<i>Ichthyomyzon unicuspis</i>	SC	SC	S3	The Silver Lamprey is an eel-shaped fish growing from 9 to 39 cm long, with a sucking disc mouth and no jaws or paired fins. They can be differed from other lamprey species based on fin shapes and teeth arrangements. Their habitat requirements include clear water, the availability of fish hosts, and relatively clean beds of sand or organic debris (1).	No	Known to occur in the general area	No further consideration required
Herptiles								
Blanding's Turtle	<i>Emydoidea blandingii</i>	END	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	No further consideration required
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).	No	Known to occur in the general area	No further consideration required
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: adjacent lands only	Known to occur in the general area	Potential significant wildlife habitat on adjacent lands
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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COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
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).	Yes: on-site and adjacent lands	Known to occur in the general area	Consideration required under local/regional conservation objectives
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 ctenatus</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
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
Hine's Emerald	<i>Somatochlora hineana</i>	END	END	S1	Hine's Emerald is a medium-sized dragonfly with a dark abdomen, metallic green thorax with two yellow stripes, and green eyes. Its habitat consists of groundwater-fed wetlands with grassy vegetation (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
Yellow-banded Bumble Bee	<i>Bombus terricola</i>	SC	SC	S3S5	The Yellow-banded Bumble Bee is a medium-sized bumble bee with a distinct yellow and black abdominal band pattern found on its queens, males, and workers. This species is a forage and habitat generalist, able to use a variety of nectaring plants and environmental conditions. It can be found in mixed woodlands, particularly for nesting and overwintering, as well as a variety of open habitat such as native grasslands, farmlands and urban areas. The Yellow-banded Bumble Bee ranges from the Mixedwood Plains of southern Ontario to the Hudson Bay Lowlands in the north (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).	Yes: on-site and adjacent lands	Known to occur in the general area	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	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
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).	Yes: on-site and adjacent lands	Known to occur in the general area	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).	Yes: on-site and adjacent lands	Known to occur in the general area	Consideration required under the ESA
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	S3	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
Black Ash	<i>Fraxinus nigra</i>	No status	END	S4	The Black Ash is a smaller-sized tree with a narrow crown, light grey and scaly bark, and green, oval leaflets on a central stalk. It grows everywhere in Ontario except for the far north, preferring moist climates and soils such as swampy woodlands or bogs (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
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).	No	Known to occur in the general area	No further consideration required

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