

Scoped Environmental Impact Study – 20 Rose Street, City of Barrie, Ontario



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Prepared for:
County of Simcoe Housing Corporation
Attn: Rachelle Hamelin

Cambium Reference: 18918-001

CAMBIUM INC.

866.217.7900

cambium-inc.com



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1.0 Introduction

Cambium Inc. (Cambium) was retained by County of Simcoe Housing Corporation to conduct a Scoped Environmental Impact Study at 20 Rose Street, City of Barrie, Ontario (Figure 1). The subject property is bounded by Rose Street to the south, Hwy 400 on ramp to the west, Hwy 400 northbound to the north, and a residential subdivision to the west. The proposed development includes an affordable housing development, composed of a mix of 215 residential units, and community and sociated services agency commercial space, requiring a Zoning By-Law Amendment. Based on the proposed development, the entire property will be considered the Site for this report.

The following Scoped Environmental Impact Study (EIS; the Study) serves to address potential impacts to natural heritage features identified during the preliminary development review process, as required by the Provincial Policy Statement, 2020 (PPS), Lake Simcoe Protection Plan, 2009 (LSPP), City of Barire Official Plan, 2023 (OP) and Zoning By-Law, Consolidated 2023 (ZB). The Site is within the City of Barrie settlement area.

The Site is adjacent to (within 120 m of) the following mapped natural heritage feature: Woodlands (listed as a Level 3 Natural Heritage Resource in the City of Barrie OP). The Site is within Ecoregion 6E of Ontario (Crins, Gray, Uhlig, & Wester, 2009).

The Site is within the jurisdiction of the Lake Simcoe Region Conservation Authority however, their regulated area does not overlap the Site.

The Endangered Species Act, 2007 (ESA) protects endangered and threatened species and their habitats from harm or destruction. Habitat for endangered and threatened species is also afforded protection under provincial natural heritage policy; however, it is ultimately the proponent's responsibility to ensure that no harm to these species or their habitats occurs during their planned activities. This Study includes a habitat-based screening for species of conservation concern to determine if the Site has suitable habitat for any provincially or federally listed 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 for 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 Summary of Historical Land Use and Proposed Development

The Site is approximately 1.87 ha and bounded by a chain link fence on all sides. It was previously a police facility that has since been demolished. The Site currently contains a portable residential structure, generator, and three storage containers. It is mainly composed of a manicured lawn, with gravel driveway/parking area and disturbed areas were the previous structure used to be. There are approximately several trees planted on Site, mainly concentrated along the southern portion, with some planted along the northern edge of the Site. There is a manicured man-made swale along the eastern Site boundary that drains storm water on to Rose Street. The Site is bordered by the Hwy 400 and its on ramp to the north and west, Rose Street to the south with a residential subdivision south of it. There is a residential subdivision to the east of Site and small section of woodlands in the northeast corner along the Hwy 400 right of way.

The proposed development includes an affordable housing development, composed of a mix of 215 residential units, and community and social services agency commercial space. A Conceptual Site Plan is provided in Appendix A.



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 (PPS), 2020
- Lake Simcoe Protection Plan (LSPP), 2009
- LSRCA Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses
- City of Barrie Official Plan, 2023
- City of Barrie Zoning By-law, Consolidated 2023
- Endangered Species Act (ESA), 2007
- Species at Risk Act (SARA), 2002
- Migratory Birds Convention Act (MBCA), 1994

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.

2.2 Conservation Authority Regulation

“Conservation Authorities are community-based watershed management agencies, whose mandate is to undertake watershed-based programs to protect people and property from flooding, and other natural hazards, and to conserve natural resources for economic, social and environmental benefits” (Conservation Ontario, 2022). Historically, Conservation Authorities each had their own Regulation under the *Conservation Authorities Act, 1990*. However, since Bill 23 received royal assent on November 28, 2022, all 36 conservation authority regulations have been consolidated into a single regulation within the *Conservation Authorities Act*, which is effective as of July 1, 2023. Part VI of the *Conservation Authorities Act* outlines that areas within the regional conservation authorities jurisdiction include watercourses, hazard lands, wetlands, river or stream valleys, and the nearshore areas of the Great Lakes, St. Lawrence River, and applicable inland lakes.



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 (KNHFs), and key hydrologic features (KHF). KNHFs include wetlands, significant woodlands, significant valleylands, and natural areas abutting Lake Simcoe. KHF include wetlands, permanent and intermittent streams, and lakes other than Simcoe. The Site falls within the geographical limits of the Lake Simcoe Protection Act, and therefore the LSPP applies to the proposed development.

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

The land use designations and zoning of the Site are summarized in Table 1:

Table 1 Summary of Municipal Official Plan and Zoning By-law Designations

Source	Designation / Zoning
Official Plan – City of Barrie	Community Hub
Zoning By-law – City of Barrie	Institutional (I)

2.5 Endangered Species Act, 2007

Species listed as endangered or threatened on the Species at Risk in Ontario (SARO) list, and their habitats, 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 (SWH), a provincially protected natural heritage feature. Species at risk (SAR) are discussed throughout this report, as applicable.

2.6 Species at Risk Act

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



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

Known aquatic SAR populations and associated critical habitats are mapped by DFO. Critical habitat for aquatic SAR may include areas used for spawning, rearing young, feeding, overwintering, and migration.

2.7 Migratory Birds Convention Act, 1994

The federal *Migratory Birds Convention Act, 1994* (MBCA) prohibits killing, capturing, injuring, taking or disturbing of the listed migratory birds. Including damaging, destroying, removing, or disturbing of nests of all migratory bird species that contain a live birds or viable eggs. In 2022, new Migratory Birds Regulations (MBR) were adopted that afford year-round protection to the nests of 18 migratory species, until the nest is deemed to be abandoned. Nest abandonment must be reported through the Abandoned Nest Registry, administered by Environment and Climate Change Canada (ECCC), if there is a need to damage, disturb, destroy, or remove a nest of a species listed in Schedule 1 of the MBR. The time period to confirm nest abandonment varies by species, and ranges from 12 to 36 months.



3.0 Technical Approach and Data Collection Methods

3.1 Background Information Review

Supporting 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. Data was obtained from provincial, municipal, and other online resources to provide context to the development proposal, and to guide development of the site-specific work program. Field studies were subsequently conducted to verify and/or add detail to the high-level contextual information derived from these publicly available resources.

The comprehensive desktop review for this Site included the following resources:

- Land Information Ontario (LIO) database via the online Natural Heritage Areas: Make-a-Map tool (Ministry of Natural Resources and Forestry, 2022)
- Natural Heritage Information Center (NHIC) database: species at risk (SAR) occurrence records
- Online Atlas Data:
 - Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature, 2018)
 - Ontario Breeding Birds Atlas (OBBA) (2001-2005) (Bird Studies Canada, 2005)
- LSRCA Regulated Area Map Tool (LSRCA, 2023)
- City of Barrie Official Plan (City of Barrie, 2023)
- City of Barrie Zoning By-Law (City of Barrie, 2023)

Mapped natural heritage features present in the general area of the Site are shown on Figure 1. A summary of background review results is provided in Table 2.



Table 2 Background Review Summary

Source	Location Reference	Relevant Records
LIO Geographic Database	Site and 120 m adjacent lands	Woodlands
NHIC Database	17PK0317 list grid squares overlapping the Site	Eastern Wood-pewee – Special Concern
Ontario Breeding Bird Atlas (OBBA)	17TPK01 list grid squares overlapping the Site	Incorporated into list of species within Appendix B
Ontario Reptile and Amphibian Atlas (ORAA)	17PK01 list grid squares overlapping the Site	Incorporated into list of species within Appendix B
Aquatic SAR distribution maps	Site and 120 m adjacent lands	None

Note: THR = Threatened species on SARO list ; END = Endangered species on SARO list; SC = Special concern species on SARO list. The Species of Conservation Concern Screening provided in Appendix C includes a list of all species within the overlapping OBBA and ORAA squares with potential policy implications.

3.2 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.

3.3 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.

3.3.1 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 ELC communities on the Site through vegetation inventory, and soil assessment with a hand auger where vegetation types could not be classified based on vegetation alone. Where vegetation communities extended off the Site, classification was done through observation from property boundaries and publicly accessible lands.

Data includes the provincial status of plant species and vegetation communities, where such information exists. Sensitivity of individual vegetation species was evaluated based on the coefficient of conservatism (CC) which is a measure of the tolerance of a species to disturbance and fidelity to a specific habitat type; species with CC of 9-10 exhibit a high degree of fidelity to a narrow range of habitat parameters. The sensitivity of vegetation communities was evaluated through an assessment of various community attributes including age, habitat quality, degree of disturbance, presence of non-native/invasive species, and presence of sensitive plant species (plants with CC of 9-10). A description of CC values is provided in Table 3.



Table 3 Coefficient of Conservatism (Adapted from Oldham et al. 1995)

Coefficient of Conservatism	Rank	Description
0 to 3	Tolerant	Found in a wide variety of plant communities, including disturbed sites.
4 to 6	Moderately Conservative	Typically associated with a specific plant community but tolerate moderate disturbance.
7 to 8	Conservative	Typically associated with a plant community in an advanced successional stage that has undergone minor disturbance.
9 to 10	Highly Conservative	Typically displaying a high degree of fidelity to a specific plant community or a narrow range of synecological parameters.

3.3.2 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 habitat and nesting observations were documented and photographed.



4.0 Characterization of Natural Features and Functions

Data acquired through the background information review and field investigations is summarized in the following sections. Based on the information gathered, an assessment of significance has been completed to identify protected natural heritage and hydrologic features on and/or adjacent to the Site.

A summary of the field investigations completed on the Site is presented in Table 4. Representative Site photos are included within the Photo Log in Appendix C.

Table 4 Summary of Field Investigations

Date	Time On Site	Atmospheric Conditions	Observer	Activities
2023-10-05	11:30-13:45	Air Temp:23°C Wind:2 Noise:2/3 Sky: Partly Cloudy	Brenden Hnatiw Mitchell Horn	• Ecological Land Classification • Vegetation Inventory • Delineate Drip Line • General Wildlife Survey

Notes: Wind = 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 was relatively flat with the elevation on Site approximately 270 masl. There was a man-made manicured swale along the east Site boundary that drains stormwater towards Rose Street.

4.1.1 Historical Land Use

A review of historical aerial imagery for the Site area indicates there has been a building and associated parking since at least 1978 until 2018. Imagery from 2022 shows the building and parking area had been demolished. The woodlands on adjacent lands northeast of the east had the east portion removed between 2008 and 2012.

4.2 Vegetation Communities and Species

The vegetation communities on the Site are summarized in Table 5 and are mapped on Figure 2. A list of identified species and representative photos for each community are provided in Appendix D.

Table 5 Vegetation Communities

No.	ELC Code	Community Description	Community Type	S -Rank
1	CVC	Constructed Commercial and Institutional (On Site)	Constructed	SNA
2	FOD5-6	Dry – Fresh Sugar Maple – Basswood Deciduous Forest Type (Adjacent Lands)	Terrestrial	S5
3	CVR	Constructed Residential	Constructed	SNA

The Site mainly consisted of manicured lawn, with a gravel driveway and parking area (Community 1). There is a sandy patch where the previous structure used to be located. There were a number of trees that have been planted on Site, with the majority being planted along the southern portion of Site. Species include Sugar Maple (*Acer saccharum*) Norway Maple (*Acer platanoides*), Small-leaved Linden (*Tilia cordata*), and Blue Spruce (*Picea pungens*). There were also three Austrian Pine (*Pinus nigra*) and three dying Scots Pine (*Pinus sylvestris*) planted along the northern Site boundary with White Poplar (*Populus alba*) saplings



undergrowth and Riverbank Grape (*Vitis riparia*) taking over. Along the eastern Site boundary there was a chain link fence (The Site is bounded by the fence on all sides) with planted trees on adjacent lands. The tree species consisted of Norway Spruce (*Picea abies*), Manitoba Maple (*Acer negundo*) with Staghorn Sumac (*Rhus typhina*) and European Buckthorn (*Rhamnus cathartica*) undergrowth with Riverbank Grape taking over some areas.

The woodlands on adjacent lands at the northeast corner of Site (Community 2) are dominated by Basswood (*Tilia americana*), with White Ash (*Fraxinus americana*), Sugar Maple, and Northern Red Oak (*Quercus rubra*) as sub-dominate vegetation types. The understory was dominated by European Buckthorn and Tartarian Hiney Suckle (*Lonicera tatarica*), with some Chokecherry present (*Prunus virginiana*). Ground cover was dominated by Poison Ivy (*Toxicodendron radicans*), Virginia Creeper (*Parthenocissus quinquefolia*) and Riverbank Grape. The woodlands showed signs of heavy anthropogenic disturbance. Overall, the understory and groundcover are heavily dominated by non-native/invasive species. There were signs of cutting, dumping of cuttings, grass clippings, and old potted plants. It should be mentioned that between 2008 and 2012 aerial imagery shows that the eastern portion of the woodlands was removed and is currently a bin storage area.

No provincially rare vegetation communities were observed on the Site and adjacent lands. No at-risk or provincially rare (S1, S2, S3) vegetation species were identified on the Site. A search for Butternut (*Juglans cinerea*; provincially endangered) was completed as part of the vegetation survey; no Butternut trees were identified on the Site.

4.3 Significant Woodlands

In the past 200 years over 70 percent of woodland cover has been lost in Ecoregions 6E and 7E (Ministry of Natural Resources, 2010). The protection of woodland cover in southern Ontario is an important concern (Ministry of Natural Resources, 2010). Planning authorities are responsible for protecting significant woodlands within Ecoregions 6E and 7E in accordance with policies 2.1.4(b) and 2.1.6 of the PPS. The amount of woodland cover is high across the landscape within Ecoregion 5E. As such, the Natural Heritage Reference Manual and the PPS do protect or designate significant woodlands within Ecoregion 5E.



There are no woodlands on Site; however, there is a small woodland (approximately 0.44 ha) located on adjacent lands northeast of the Site, with canopy cover extending into the Site in some locations, as shown on Figure 2. The woodlands are mapped as Environmental Protection Area (EPA) – Level 3 on Map 3 of the City of Barrie Official Plan. Section 5.4.2.3 of the City of Barrie OP states,

“Level 3 resources represent more regionally or locally significant features and supporting components of the Natural Heritage System network including: regionally significant life science areas of natural and scientific interest; woodlands greater than 0.5 hectares and less than 4.0 hectares; woodlands within 30.0 metres of a Level 2 feature; wetlands less than 0.5 hectares in size; cultural thicket or cultural meadow communities contiguous with woodland and wetland patches; and connectivity linkages”.

Map 3 of the City of Barrie Official shows the Level 3 woodland feature to be approximately 1.7 ha. However, based on the review of aerial imagery, the eastern extent of the woodland was cleared sometime between 2009 and 2013. Under exiting conditions, the feature is approximately 0.44 m² in size and is unlikely to meet the criteria for Level 3 natural heritage feature within the OP.

Section 5.4.2 further states that Significant Woodlands are mapped under the EPA-Level 1 and Level 2. As such, no significant woodlands are present on or adjacent to the Site.

4.4 Significant Wildlife Habitat

The Site is urban in nature, providing limited opportunities for wildlife. Open habitat on the Site (Community 1) is historically disturbed, with areas of exposed gravel and manicured lawn; no grassland bird breeding habitat is present due to the lack of thatch to support nest construction. The trees on Site could provided nesting habitat for some bird species but given the trees are sparse and anthropogenically derived, habitat for sensitive native species is limited. The adjacent forest is heavily disturbed by the adjacent residences that may deter wildlife from the area (see ‘Community 2 on Figure 2). Leaf litter is minimal to moderate with



lots of small deadfall (<15 cm dbh), with The forest has potential to support urban-tolerant wildlife species. No cavity trees were observed.

Incidental wildlife species observations on the Site included: Eastern Grey Squirrel (*Sciurus carolinensis*).

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 as outlined in Appendix E. Based on our observations during field investigations and the ELC classifications described in Section 4.2, the Site does not meet the criteria for designation as SWH. Details on species of conservation concern and their protected habitats are provided in Section 4.5.

4.5 Species of Conservation Concern

According to the Significant Wildlife Habitat Technical Guide (Ministry of Natural Resources, 2000), Species of Conservation Concern (SCC) include species that are identified as at-risk by COSEWIC or on the SARO list, known rare species (provincially, regionally, locally), and species with populations in known decline. A list of SCC, including SAR, 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 Study, as detailed in the previous sections. Cambium has employed a habitat-based screening, in order to identify suitable habitat for species located on or adjacent to the Site. A detailed habitat suitability analysis is provided in Appendix C and a discussion of the results is provided below.

4.5.1 Endangered and Threatened Species

The following endangered species are known to occur in the regional area of the Site, and the habitat types occurring on the Site may support these species. Accordingly, a detailed



evaluation of habitat type, size, and availability was completed to assess whether the Site is likely to be used by SAR.

The forest adjacent to Site (within 120 m) may provide habitat for the following bat species: Tri-coloured Bat (*Perimyotis subflavus*), Eastern Small-footed Myotis (*Myotis leibii*), Northern Myotis (*Myotis septentrionalis*) and Little Brown Myotis (*Myotis lucifugus*). However, of the few trees identified within the Site boundary, none were observed to be candidate roosting trees for bats. No SAR bats or evidence of bats was observed on the Site. As such, provided the general mitigation measures summarized in Section 7.0 are implemented, no impacts to SAR bats are anticipated.

4.5.2 Special Concern Species

Yellow-banded Bumble Bee are habitat generalists, typically nesting in woodlands or edge habitat, adjacent to meadows, grasslands, and farmlands to collect pollen and nectar from a variety of plant genera. As such, the forest of adjacent lands (Community 2) could provide potential habitat for this species. However, the Site does not contain suitable pollinator species to support foraging activities. No Yellow-banded Bumble Bee was observed during field investigations.

The background review identified records for the following additional species within 1 km of the Site: Eastern Wood-pewee. No suitable habitat for these species was documented on the Site. The forest community adjacent to Site could provide habitat for this species but while not dense the understory is likely too dense for this species.

A detailed review of Species of Conservation Concern and their habitats is provided in Appendix C.

Provided the mitigation measures summarized in Section 7.0 are implemented, no impacts to special concern species are anticipated.



5.0 Impact Assessment and Mitigation Measures

The proposed development includes an affordable housing development, composed of a mix of 215 residential units, and community and sociated services agency commercial space. In summary, no protected features were identified on Site. The following protected features were identified adjacent (within 120 m) to the Site:

- Woodlands, EPA – Level 3 under Coty of Barrie OP (Adjacent Lands)
- Candidate Significant Wildlife Habitat (Adjacent Lands)
- Candidate Endangered Habitat of Endangered and Threatened Species (Adjacent Lands)

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

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

5.1 Woodlands

The woodlands adjacent to Site are not considered significant woodlands under provincial policy but are designated EPA – Level 3 under the City of Barrie Official Plan. Based on the definition of Level 3 features in Section 5.4.2.3 of the City of Barrie Official Plan, and the historical disturbance to the eastern extent of the feature, the woodland likely doesn't meet the criteria to be considered Level 3 EPA.

Irrespective of characterization, no direct alteration to the woodland is proposed. In addition, as a conservative approach, a 10 m setback has been applied to the feature which demonstrates that no impact will occur, even if it is considered a Level 3 EPA.



5.2 Significant Wildlife Habitat

Based on our observations during field investigations and the ELC classifications described in Section 4.2 the forest on adjacent lands could potentially provide habitat for the Yellow-banded Bumble Bee. No alteration or development is proposed within the woodland adjacent to the Site. As such, no direct impacts to their habitat are anticipated in relation to the proposed development.

5.3 Habitat of Endangered and Threatened Species

The forest community adjacent to the Site could potentially provide habitat for Tri-coloured Bat, Eastern Small-footed Myotis, Northern Myotis, and Little Brown Myotis. No alteration or development is proposed within the woodland adjacent to the Site. As such, no direct impacts to their habitat are anticipated in relation to the proposed development.

5.4 Mitigation Measures and Best Management Practices

The mitigation measures and best management practices outlined in Table 6 should be implemented on the Site, to minimize the potential for adverse impacts to natural heritage features and functions on and adjacent to the Site.

Table 6 Mitigation Measures and 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 ≤ 2 m apart. This key control measure will help prevent sediment from entering surface water features (i.e., wetlands and the watercourse) in the surrounding landscape. All sediment fencing should be regularly maintained and kept in good working condition, until the area has been stabilized and/or successfully revegetated. Any observed overland drainage channels originating from Site, that may or may not have arisen 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.



Potential Impact	Recommended Best Practice
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. Eavestrough 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: Bats (Disturbance and Harm)	Tree removal should be limited to the building envelope to the extent possible. If vegetation clearing or construction is to occur between April 1 and September 30, the vegetation should be investigated by a qualified biologist to confirm whether SAR bat habitat may be present. Presence or absence of habitat should be confirmed through acoustic monitoring following industry standard protocols prior to any tree removal during the active season for bats. Vegetation clearing can proceed provided absence is confirmed.
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: 1. Revegetate with species native to the local area. 2. Request fill and compost from reputable sources that are conscious of the potential for the spread of invasive species via these media. 3. Get to know the most common invasive species in the area. 4. Brush off or clean any shoes, boots and equipment that have encountered invasive species before returning to the property. Equipment and vehicles coming into the work area should be free of soil and seeds that could introduce non-native and invasive species following the Clean Equipment Protocol for Industry: Inspecting and Cleaning Equipment for the Purposes of Invasive Species Prevention (Halloran, 2013) 5. Immediately eradicate invasive species if they are observed on the property. 6. Do not compost invasive species; put them in plastic bags and dispose of them in the garbage. 7. Do not dispose of lawn or garden clippings in the forest or wetlands to avoid species introductions. 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)



6.0 Policy Conformity

6.1 Provincial Policies

Based on the key natural heritage and/or hydrologic features identified on or adjacent to the Site, and the findings of the field investigations detailed herein, it has been shown that the proposed development of the Site can occur in conformity with the PPS and shown in Table 7. Note that natural heritage and hydrologic feature types not relevant to the development application have been intentionally omitted from the tables below.

Table 7 PPS Policy Conformity 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	2.1.4 a); 2.1.8
	Explanation: N/A		
Significant Coastal Wetland	No	No	2.1.4 b); 2.1.8
	Explanation: N/A		
Coastal Wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b)	No	No	2.1.5 f); 2.1.8
	Explanation: N/A		
Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)	No	No	2.1.5 b); 2.1.8
	Explanation: Woodlands adjacent to Site are not designated as Significant Woodlands under the City of Barrie Official Plan.		
Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)	No	No	2.1.5 c); 2.1.8
	Explanation: N/A		



Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
Significant Wildlife Habitat (including habitat of special concern species)	No	Potentially	2.1.5 d); 2.1.8
	Explanation: The forested area adjacent to the Site could provide habitat for the Yellow-banded Bumble Bee. However, no alteration or development is proposed within the woodland adjacent to the Site. As such, no impacts to their habitat are anticipated in relation to the proposed development.		
Habitat of Threatened and Endangered Species	No	Potentially	2.1.7
	Explanation: The forested area adjacent to land could provide habitat for the various endangered bat species. However, no alteration or development is proposed within the woodland adjacent to the Site. As such, no direct impacts to their habitat are anticipated in relation to the proposed development.		
Areas of Natural and Scientific Significance	No	No	2.1.5 e); 2.1.8
	Explanation: N/A		
Fish Habitat	No	No	2.1.6; 2.1.8
	Explanation: N/A		

6.2 Lake Simcoe Protection Plan

The Site is in the City of Barrie settlement area and therefore only policies 6.32 -6.34 of the LSPP apply.

Section 6.33 a) states: “*an application for development or site alteration shall, where applicable: increase or improve fish habitat in streams, lakes and wetlands, and any adjacent riparian areas*”.

No fish habitat or wetlands were documented on Site and the proposed development meets this policy.



Section 6.33 c) states: *“development should seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into receiving streams, lakes and wetlands”*.

Provided an appropriate ESC and stormwater management plan is developed, this policy can be satisfied.

Finally, Section 6.34 states: *“through an application for development or site alteration, a buffer 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”*.

The woodlands adjacent to the Site are not protected under the PPS, and therefore a naturally self-sustaining vegetation buffer is not required to meet this policy. However, it is acknowledged that the intent of this policy may extend to EP areas identified within the City of Barrie Official Plan. As a conservative approach, the adjacent Level 3 EPA was evaluated further (discussed in Sections 4.3 and 6.3), which determined that the woodlands on adjacent lands are unlikely to meet the definition of Level 3 EPA, given their current size, connectivity and limited ecological function. Nonetheless, it has been demonstrated in Figure 3 that neither the woodland itself, nor a 10 m buffer surrounding the feature, will be impacted by the proposed development. Further, our understanding is a site-specific landscape plan is being developed to accompany the development application. Opportunity exists within this design to incorporate native and self-sustaining vegetation on the landscape and mitigate any impacts that may occur.

6.3 Municipal Policies

The woodlands adjacent to Site are designated Environmental Protection Area – Level 3. Section 5.4.2.3 of the OP states

*“Level 3 resources represent more regionally or locally significant features and supporting components of the Natural Heritage System network including:
 regionally significant life science areas of natural and scientific interest;
 woodlands greater than 0.5 hectares and less than 4.0 hectares; woodlands*



within 30.0 metres of a Level 2 feature; wetlands less than 0.5 hectares in size; cultural thicket or cultural meadow communities contiguous with woodland and wetland patches; and connectivity linkages. b) Development may be permitted if the proposal ensures the protection and buffering of the significant feature and/or retains the supporting function of the feature. c) An environmental impact study will be required to be completed by a qualified professional in support of any proposed development or site alteration in or within 30.0 metres of an area identified as Level 3 on Map 3.”

No development is proposed within the mapped EPA – Level 3 area located adjacent to the Site. The woodlands are separated by a chain link fence and anthropogenically influenced by Hwy 400 and residences. Given the proximity to the woodlands, the feature was evaluated further (discussed in Sections 4.3 and 6.3), which determined that the woodlands on adjacent lands are unlikely to meet the definition of Level 3 EPA given their current size, connectivity, and limited ecological function. As a conservative approach, a 10 m buffer has been applied to the feature to demonstrate that neither the woodland itself, nor its 10 m buffer, will be impacted by the proposed development. As such, no impacts are anticipated to the ecological form or function of the feature from the proposed development.



7.0 Summary of Recommendations

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. All development setbacks identified herein should be included on all future Site Plans.
3. Vegetation removal or alteration should take place outside the breeding bird season (April 1 to August 31) and the active roosting period for bats (April 1 to September 30). Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed within 48 hours prior to clearing activities. If nests are found, work within the area must cease until the nest has fledged, as per the federal *Migratory Birds Convention Act*. Should any clearing be required during the active roosting period for bats, please contact the Ministry of Environment, Conservation and Parks for further direction (e.g. acoustic monitoring, exit surveys) to ensure conformity with the *Endangered Species Act*.
4. 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).
5. An Erosion and Sediment Control (ESC) Plan that includes perimeter light duty sediment fencing should be implemented along the watercourse side of the construction area prior to the commencement of any Site alteration.
 - 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.



- Machinery or construction materials should be stored within the construction area throughout the construction period.
6. Though not identified in the field inventories, any subsequently identified SAR discovered on the property 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 followed. 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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Camden Jerney, B.Sc., Can-CISEC
Senior Ecologist / Project Manager

DocuSigned by:

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Brenden Hnatiw, B.Sc., EPT
Ecological Technologist/ ISA Arborist

\\cambiumincstorage.file.core.windows.net\projects\18900 to 18999\18918-001 County of Simcoe, Social Housing Department EIS 20 Rose Street, Barrie\Deliverables\REPORT - EIS\Final\2023-12-21 RPT - EIS - 20 Rose St.docx



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10.0 Glossary of Terms

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



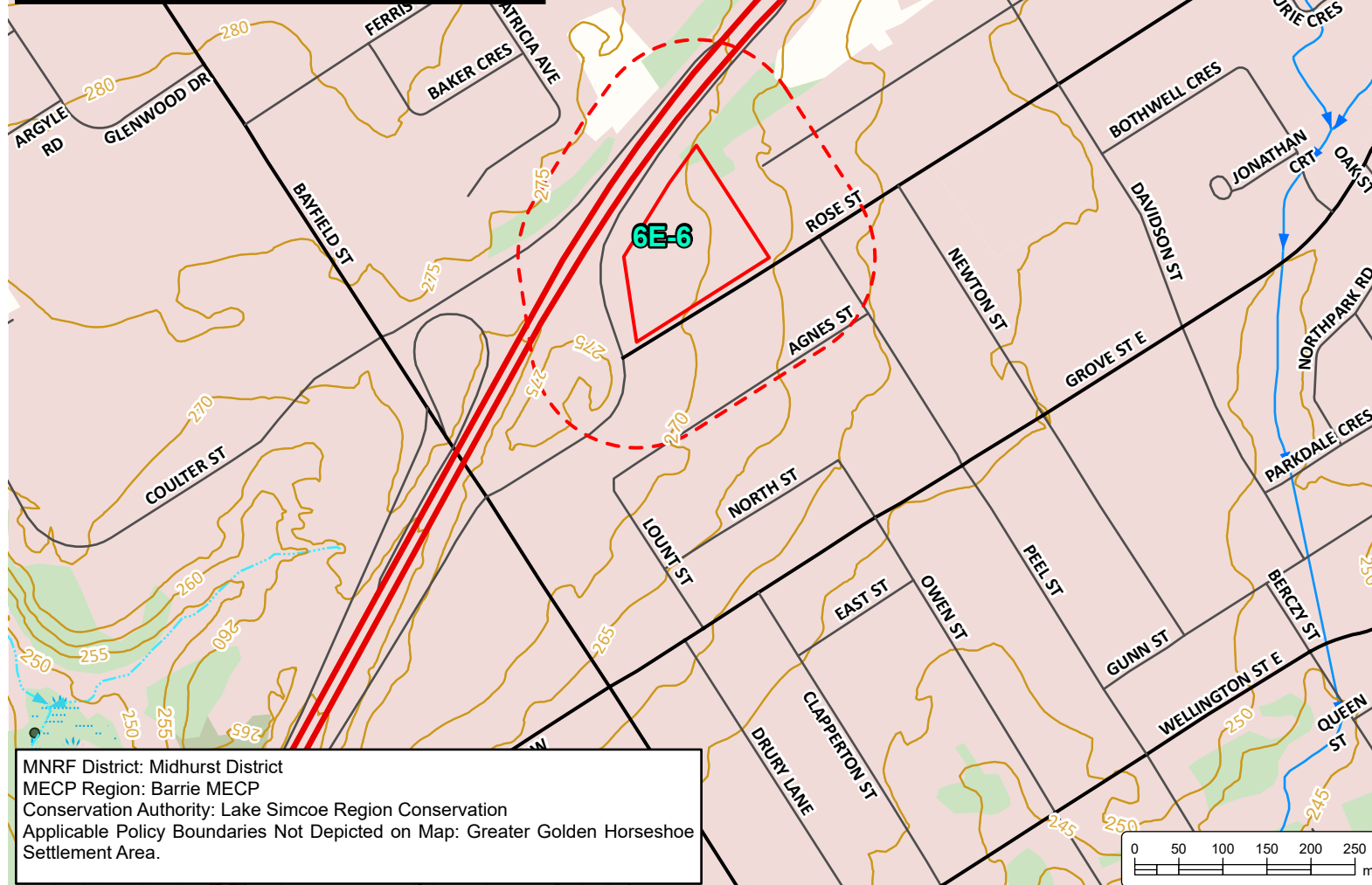
F&W: Fish and Wildlife
FA: Fisheries Act (Federal)
FEC: Forest Ecosystem Classification
FMP: Forest Management Plan
FRI: Forest Resources Inventory
FWCA: Fish and Wildlife Conservation Act
GGH: Greater Golden Horseshoe
GHP: General Habitat Protection

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



Appended Figures

REGIONAL LOCATION



MNRF District: Midhurst District
MECP Region: Barrie MECP
Conservation Authority: Lake Simcoe Region Conservation
Applicable Policy Boundaries Not Depicted on Map: Greater Golden Horseshoe Settlement Area.

ENVIRONMENTAL IMPACT STUDY

COUNTY OF SIMCOE
20 Rose Street
City of Barrie, Ontario

LEGEND

- Aquatic Resource Survey Point
- Highway
- Major Road
- Minor Road
- Contour 5m Interval (Major)
- Contour 5m Interval (Minor)
- Watercourse, Permanent
- Watercourse, Intermittent
- Ecodistrict
- Wooded Area
- Built Up Area
- Site (approximate)
- Adjacent Lands (120m)

Notes:

- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources and Forestry or the Ontario Government).
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
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194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.cambium-inc.com

LANDSCAPE SETTING AND POLICY AREAS

Project No.: 18918-001	Date: December 2023
Scale: 1:7,500	Rev.: NAD 1983 UTM Zone 17N
Created by: DBB	Checked by: CJ
Figure: 1	



**ENVIRONMENTAL
IMPACT STUDY**
COUNTY OF SIMCOE
20 Rose Street
City of Barrie, Ontario

LEGEND

- Individual Landscape Trees
- Contour 5m Interval (Major)
- Contour 5m Interval (Minor)
- Drainage Swale
- Tree Dripline
- Vegetation Community
- - - Adjacent Lands (120m)
- Site (approximate)

Notes:
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194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
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**NATURAL HERITAGE FEATURES
AND ECOLOGICAL SURVEY
STATIONS**

Project No.: 18918-001	Date: December 2023
Scale: 1:2,500	Rev.: NAD 1983 UTM Zone 17N
Created by: DBB	Checked by: CJ
Figure: 2	



ENVIRONMENTAL IMPACT STUDY

COUNTY OF SIMCOE
20 Rose Street
City of Barrie, Ontario

LEGEND

- Contour 5m Interval (Major)
- Contour 5m Interval (Minor)
- Woodlands (Candidate SWH and SAR Habitat)
- Recommended Woodland Buffer (10m)
- Vegetation Community
- Adjacent Lands (120m)
- Site (approximate)

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

NATURAL HERITAGE CONSTRAINTS

Project No.: 18918-001	Date: December 2023
Scale: 1:1,750	Rev.: Rev.
Created by: DBB	Checked by: CJ
Figure: 3	



Scoped Environmental Impact Study – 20 Rose Street, City of Barrie, Ontario
County of Simcoe Housing Corporation
Cambium Reference: 18918-001
December 21, 2023

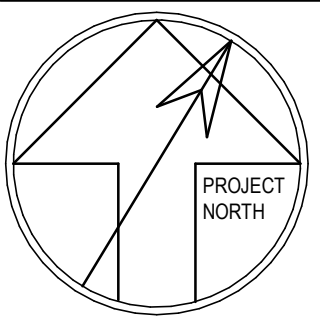
Appendix A

Conceptual Site Plan

SITE PLAN LEGEND	
	EXISTING SPOT GRADE
	NEW FINISH GRADE
	BORE HOLE (BH)
	TEST PIT (TP)
	YARD HYDRANT
	CATCH BASIN
	PEDESTRIAN ENTRY DOOR LOCATION
	SERVICE/ OVERHEAD DOOR LOCATION
	B.F. PARKING STALL
	B.F. CURB CUT - WITH DETECTABLE GROOVES
	SIAMESE CONNECTION
	LIGHT STANDARD
	WALL MOUNTED LIGHT FIXTURE
	CONTROL JOINT
	ASPHALT TYPE 1
	TACTILE INDICATOR
	FIRE HYDRANT
	HYDRO POLE
	TRANSFORMER
	PAINTED STOP BAR
	HOSE BIB
	LIGHT BOLLARD
	SITE FURNITURE

REVISIONS

ALL DIMENSIONS TO BE CHECKED AND VERIFIED ON SITE. DISCREPANCIES TO BE REPORTED TO THE ARCHITECT. LATEST APPROVED STAMPED DRAWINGS ONLY TO BE USED FOR CONSTRUCTION.



MCLARCHITECTS
MCKNIGHT CHARRON LIMITED

48 ALLIANCE BLVD., UNIT 110
BARRIE, ONTARIO L4M 5K3
WWW.MCLARCHITECTS.CA

T 705 722 6739
F 705 726 5418

DRAWING TITLE:
SITE PLAN

PROJECT NAME:
**COUNTY OF SIMCOE HOUSING
DEVELOPMENT - BARRIE -
OPTION 2-R3
20 ROSE STREET, BARRIE, ON**

DATE: DECEMBER 15, 2023	PROJECT #	SHEET #
DRAWN BY: KC		A1.1
SCALE: As indicated		



Appendix B

Species of Conservation Concern Screening



APPENDIX: Species of Conservation Concern - Simcoe County

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Birds								
Bald Eagle	<i>Haliaeetus leucocephalus</i>	No Status	SC	S2N,S4B	The Bald Eagle is a bird of prey with a white head, neck and tail, a massive bright yellow beak, powerful legs, and a wingspan of over 2 m. It nests in a variety of habitats and forest types, almost always near a major lake or river where they do most of their hunting. These nests are usually on islands in freshwater lakes or in large trees such as the pine and poplar. During the winter, they may also be found near open bodies of water that do not freeze (1).	No	Known to occur in the general area	No further consideration required
Bank Swallow	<i>Riparia riparia</i>	THR	THR	S4B	The Bank Swallow is a small songbird of around 12 cm long with a distinctive dark breast band, that flies with quick and erratic wingbeats (1). It nests in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. This can include banks of rivers and lakes, bluffs, active sand and gravel pits, road cuts and stockpiles of soils. However, they prefer sand-silt substrates for excavating their nest burrows. They often use large wetlands as communal nocturnal roosts post-breeding or during wintering periods (2).	No	Known to occur in the general area	No further consideration required
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	S4B	The Barn Swallow is a mid-sized songbird with steel-blue backs and wings, glossy in males, and a line of white spots across its upper tail. It lives in a variety of open habitats for foraging, such as grassy fields, pastures, certain agricultural crops, shorelines, cottage areas, wetlands, or subarctic tundra (2). They prefer to nest within human made structures such as barns, bridges, and culverts. Barn Swallow nests are cup-shaped and made of mud, typically attached to horizontal beams or vertical walls underneath an overhang (1).	No	Known to occur in the general area	No further consideration required
Black Tern	<i>Chlidonias niger</i>	No Status	SC	S3B	The Black Tern is a small waterbird with a forked tail, straight pointed bill, slender shape, and black head during breeding season. It builds floating nests in loose colonies in shallow marshes, with a preference for cattails. They breed primarily in the marshes along the edges of the Great Lakes, but may also use wetlands further north if suitable (1).	No	Known to occur in the general area	No further consideration required
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	S4B	The Bobolink is a mid-sized songbird of tan colour with black stripes, except for males during summer breeding season who are black with a white back and yellow collar. It prefers tall, grassy meadows, hayfields and some croplands, and feeds (largely on insects) on the ground in dense grasses (1). It tends to nest in forage crops: hayfields and pastures dominated by species including clover, bluegrass, and broadleaf plants (2).	No	Known to occur in the general area	No further consideration required
Canada Warbler	<i>Cardellina canadensis</i>	THR	SC	S4B	The Canada Warbler is a small songbird with bright yellow underparts and bluish-grey back and tail (1). It can be found in a variety of forest types, but is most abundant in moist, mixed forests with a well-developed, dense shrub layer. Nests are usually located on or near the ground on mossy logs, and along stream banks (3).	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
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 understory (4).	No	Known to occur in the general area	No further consideration required
Chimney Swift	<i>Chaetura pelagica</i>	THR	THR	S4B,S4N	The Chimney Swift is a small bird, between 12 and 14 cm, with a brown, cigar-shaped body, slender wings, and an erratic flight pattern. Prior to settlement, the Chimney Swift would mainly nest in cave walls and hollow trees. Now, it is found mostly near urban and suburban areas where the presence of chimneys or other manmade structures provide nesting and roosting habitat. They also tend to stay in habitat close to the water (1).	No	Known to occur in the general area	No further consideration required
Common Nighthawk	<i>Chordeiles minor</i>	THR	SC	S4B	The Common Nighthawk is a medium-sized bird with long, pointed wings, a long tail with a notch, and large eyes. Its plumage of dark brown with black and white specks blends with its roost site. It is typically found in open areas such as gravel beaches, rock outcrops and burned woodlands, that have little to no ground vegetation. This species can also be found in highly disturbed locations such as clear cuts, mine tailing areas, cultivated fields, urban parks, gravel roads, and orchards (1).	No	Known to occur in the general area	No further consideration required
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR	S4B	The Eastern Meadowlark is a medium-sized migratory songbird with a bright yellow throat and belly, a black V shape on its chest, and a pointed bill. It prefers pastures and hayfields, but is also found to breed in orchards, shrubby fields, human-use areas such as airports and roadsides, or other open areas. The Eastern Meadowlark can nest from early May to mid-August, in nests that are built on the ground and well-camouflaged with a roof woven from grasses (1).	No	Known to occur in the general area	No further consideration required
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	THR	THR	S4B	The Eastern Whip-poor-will is a medium-sized bird with mottled brown and grey feathers to blend in with its surroundings, a large flattened head, and small bill. They are usually found in areas with a mix of open and forested areas such as patchy forests with clearings, forests that are regenerating after major disturbances, savannahs, open woodlands or openings in more mature forests. Breeding habitat is dependent on forest structure rather than composition, although common tree associations are pine and oak, and it nests directly on the forest floor (2). The species prefers to nest in semi-open or patchy forests with clearings as it forages in open areas and uses forested areas for roosting (1).	No	Known to occur in the general area	No further consideration required
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	S4B	The Eastern Wood-pewee is a species of 'flycatcher', a bird that eats flying insects. It grows to approximately 15 cm, has greyish-olive upper parts and pale bars on its wings. This species lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It prefers intermediate-age forest stands with little understory vegetation (1). It typically creates nests on tree branches 2-12 m in height (2).	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
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
Golden Winged Warbler	<i>Vermivora chrysoptera</i>	THR	SC	S4B	The Golden-winged Warbler is a small songbird with distinctive yellow wing patches and patches behind their eyes. It inhabits early successional habitat of old fields and favour areas where trees are spread out or forest edges to use for perching, singing, and searching for food. They seem to prefer regeneration zones with young shrub growth, surrounded by mature forest, locations that have recently been disturbed, such as field edges, hydro or utility right-of-ways, or logged areas for their breeding sites; often frequenting clusters of herbaceous plants and low bushes (1).	No	Known to occur in the general area	No further consideration required
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	SC	SC	S4B	The Grasshopper Sparrow is a small songbird with a streaked back, a white stripe down the center of its crown, a flattish head, and a conical beak. It inhabits open grasslands and prairies with well-drained soil, preferring areas that are sparsely vegetated. It will also nest in hayfields and pastures, as well as alvars and occasionally grain crops such as barley (1).	No	Known to occur in the general area	No further consideration required
King Rail	<i>Rallus elegans</i>	END	END	S2B	The King Rail is a large bird, standing at around 40 cm tall, with a long, curved bill, orange chest and neck, and black sides with vertical white bars. This species prefers densely vegetated freshwater marshes with open shallow water and shrub thicket areas. Current records for Ontario suggest that these birds prefer sites within coastal marshes of the Great Lakes. Most breeding pairs left in Ontario are found in wetlands bordering Lake St Clair or coastal marshes along Lakes Erie and Ontario (1).	No	Known to occur in the general area	No further consideration required
Least Bittern	<i>Ixobrychus exilis</i>	THR	THR	S4B	The Least Bittern is a small member of the heron family, reaching around 30 cm in length. It has brown and beige plumage with chestnut patches on its wings (1). The species nests in marshes (> 5 ha) and swamps dominated by emergent vegetation, preferably cattails, interspersed with patches of woody vegetation and open water. Although Least Bitterns usually nest in larger marshes territorial individuals have been found in marshes as small as 0.4 ha. They require dense vegetation and open water with stable levels within 10 m for nesting, and access to clear, open water for foraging (3).	No	Known to occur in the general area	No further consideration required
Loggerhead Shrike	<i>Lanius ludovicianus</i>	END	END	S2B	The Loggerhead Shrike is a small bird with a black, hooked bill, grey crown, and white throat and chest. This species has specific habitat requirements that are dependent on active livestock grazing, or grassland areas that have naturally short grass cover (i.e. alvar communities). They also require spiny, multi-branched shrubs, or barbed fencing, to catch prey. They prefer grassland habitats that have sporadic occurrences of low trees and shrubs; particularly hawthorn species, which are used as part of their feeding behaviour (1).	No	Known to occur in the general area	No further consideration required



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COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Olive-sided Flycatcher	<i>Contopus cooperi</i>	THR	SC	S4B	The Olive-sided Flycatcher is a medium-sized songbird with olive colouring, often seen perching on top of tall trees waiting to catch their prey. It prefers open areas along natural mature forest edges, forest edges near natural openings such as rivers or swamps, human-made openings, or burned forest openings with numbers of dead trees. Breeding habitat usually consists of coniferous or mixed forests adjacent to rivers or wetlands, in Ontario often nesting in White and Black Spruce, Jack Pine, and Balsam Fir (1).	No	Known to occur in the general area	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).	No	Known to occur in the general area	No further consideration required



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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



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Fish								
American Eel	<i>Anguilla rostrata</i>	No Status	END	S1?	The American Eel is a long, slender bodied fish, with one long fin extending down the back and around the tail, and two small pectoral fins. It has thick lips, and a protruding lower jaw that extends out above the upper jaw. At the juvenile stage, they swim up the St. Lawrence River to reach Lake Ontario and connected tributaries where they will remain for 8 to 23 years before migrating back to their spawning grounds. In Ontario, the American eel prefers mud, sand or gravel substrates during the juvenile stage when they reside primarily in the benthic zone of waterbodies. More mature eels are able to thrive in most environments provided there is available cover during daylight hours, and the habitat is accessible (2).	No	Known to occur in the general area	No further consideration required
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
Northern 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


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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


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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).	No	Known to occur in the general area	No further consideration required
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
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


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Eastern Milksnake	<i>Lampropeltis triangulum</i>	SC	NAR	S4	The Eastern Milksnake's colouration is grey or tan with reddish alternating blotches outlines in black along its back and sides (5). It has recently been delisted from being a species at risk in Ontario (1). This species tends to use open habitats such as rocky outcrops, fields and forest edges. The preferred prey of milksnakes are mice, small rodents, and ground nesting birds which are amply found in and surrounding agricultural outbuildings. The milksnake is secretive and is not likely to be encountered during the day or at night while hunting (5).	No	Known to occur in the general area	No further consideration required
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	SC	SC	S4	The Eastern Ribbonsnake is slender with three bright yellow stripes running down its back and sides and a white crescent in front of each eye. This snake is usually found close to water as they are strong swimmers, often fleeing predators by diving into shallow water. It prefers wetland habitats where its prey species, frogs and small fish, are abundant. Over winter, they congregate in underground burrows or rock crevices to hibernate (1).	No	Known to occur in the general area	No further consideration required
Massasauga Rattlesnake (Great Lakes - St. Lawrence population)	<i>Sistrurus catenatus</i>	THR	THR	S3	The Massasauga, Ontario's venomous snake, can be identified by its rattle, vertical pupils, and triangular head. It inhabits a range of different habitats throughout Ontario, including tall grass prairies, marshes, bogs, shorelines, forests, and alvars. Within these habitats they require open areas to warm themselves in the sun (1).	No	Known to occur in the general area	No further consideration required
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

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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).	Yes: adjacent lands only	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
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: adjacent lands only	Known to occur in the general area	No further consideration required
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).	Yes: adjacent lands only	Known to occur in the general area	No further consideration required
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: adjacent lands only	Known to occur in the general area	No further consideration required
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: adjacent lands only	Known to occur in the general area	No further consideration required
Algonquin Wolf	<i>Canis lycaon</i>	SC	THR	S4	Formerly called the Eastern Wolf, this canine was recently renamed the Algonquin Wolf. In the southern portion of the province, this species prefers deciduous and mixed forest landscapes while their northern range include mixed and coniferous forests. It is most prevalent in areas with abundant prey species which include Beaver, White-tailed Deer and Moose. Dens sites are usually found in coniferous forests with easily excavated soil types like sand and close to a permanent water source (1).	No	Known to occur in the general area	No further consideration required
Trees, plants, fungi and lichens								
American Ginseng	<i>Panax quinquefolius</i>	END	END	S2	American Ginseng is a perennial plant which grows up to 60 centimetres in height. The leaves typically have five leaflets arranged in a whorl at the end of the leaf stem. The root looks like a gnarly parsnip. The flowers are an inconspicuous green-white in colour, but the berries are bright red and arranged in a cluster. In Ontario, the American Ginseng typically grows in rich, moist, and mature deciduous woods dominated by Sugar Maple, White Ash, and American Basswood. It typically grows in deep, nutrient rich soil over limestone or marble bedrock (1).	Yes: adjacent lands only	Confirmed absent through targeted surveys	No further consideration required



APPENDIX: Species of Conservation Concern - Simcoe County

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
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: adjacent lands only	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

References

1. Ministry of Environment, Conservation and Parks. (2022). Species at Risk in Ontario. Retrieved from <https://www.ontario.ca/page/species-risk-ontario>
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4. Environment Canada. (2018).
5. Ontario Nature. (2020). Reptiles and Amphibians. Retrieved from <https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/species/>
6. University of Michigan Museum of Zoology. (2004).



Appendix C
Photographic Log



Photo 1 Portable Residences facing south, October 2023.



Photo 2 Old building footprint facing west, October 2023.



Photo 3 Southeast corner of Site, October 2023.



Photo 4 Main entrance to Site, facing south, October 2023.



Photo 5 Southwest corner of Site, October 2023.



Photo 6 Second entrance to Site facing southwest, October 2023.



Photo 7 Drainage swale and fencerow along eastern Site boundary, October 2023.



Photo 8 Gravel drainage for swale, October 2023.



Photo 9 Drainage to swale outlet onto Rose Street, October 2023.



Photo 10 Outlet to drainage swale on Rose Street, October 2023.



Photo 11 Row of trees in northeast corner of Site, October 2023.



Photo 12 Vegetation in northeast corner of Site Year, October 2023.



Photo 13 Vegetation in northeast corner of Site, October 2023.

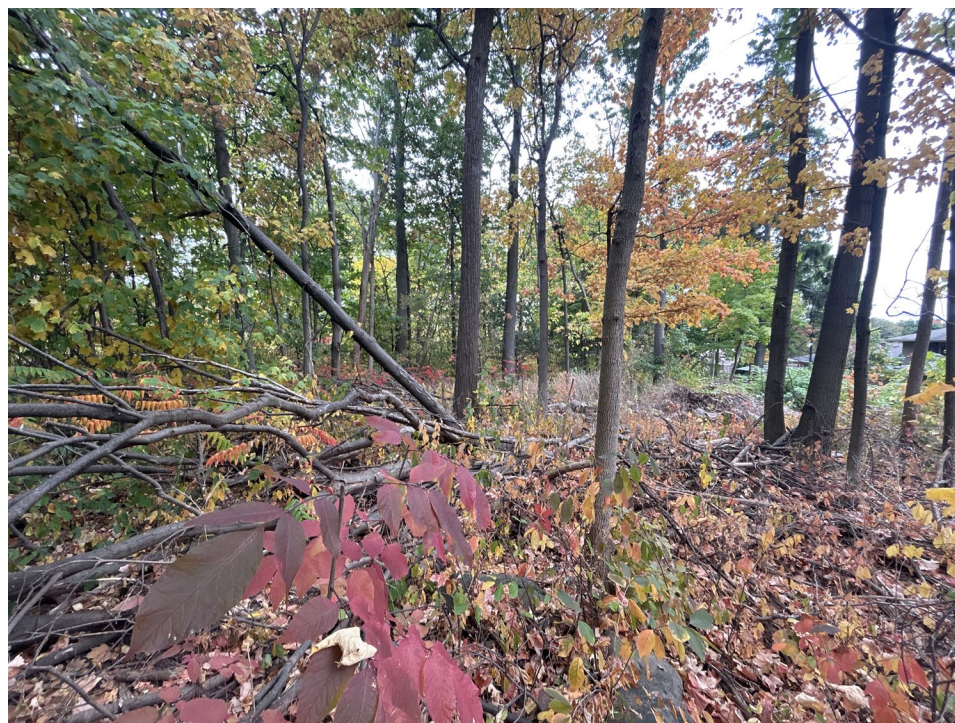


Photo 14 Community 2 on adjacent lands, October 2023.



Photo 15 Community 2 on adjacent lands, October 2023.



Photo 16 Community 2 on adjacent lands, October 2023.



Photo 17 Dumping of potted plants in Community 2 on adjacent lands, October 2023.



Photo 18 Portion of woodlands removed for bin storage, October 2023.



Photo 19 Hwy 400 right of way facing west, October 2023.



Photo 20 Hwy 400 on ramp right of way facing southwest, October 2023.



Appendix D
Vegetation Species List



Appendix - Vegetation Community and Inventory

#	Common Name (Latin Name)	Vegetation Community	CoW
		1	
1	Basswood (<i>Tilia americana</i>)	D	3
2	Black Walnut (<i>Juglans nigra</i>)	X	3
3	Bull Thistle (<i>Cirsium vulgare</i>)	X	3
4	Canada Avena (<i>Geum canadense</i>)	X	0
5	Chokecherry (<i>Prunus virginiana</i> var. <i>virginiana</i>)	X	3
6	Common Mullein (<i>Verbascum thapsus</i> ssp. <i>thapsus</i>)	X	5
7	Eastern Prickly Gooseberry (<i>Ribes cynosbati</i>)	X	3
8	European Buckthorn (<i>Rhamnus cathartica</i>)	X	0
9	Large-toothed Aspen (<i>Populus grandidentata</i>)	X	5
10	Northern Red Oak (<i>Quercus rubra</i>)	S	3
11	Norway Maple (<i>Acer platanoides</i>)	X	5
12	Norway Spruce (<i>Picea abies</i>)	X	5
13	Poison Ivy (<i>Toxicodendron radicans</i>)	X	0
14	Riverbank Grape (<i>Vitis riparia</i>)	X	0
15	Spreading Dogbane (<i>Apocynum androsaemifolium</i>)	X	5
16	Staghorn Sumac (<i>Rhus typhina</i>)	X	3
17	Sugar Maple (<i>Acer saccharum</i>)	C	3
18	Tatarian Honeysuckle (<i>Lonicera tatarica</i>)	X	3
19	Virginia Creeper (<i>Parthenocissus quinquefolia</i>)	X	3
20	White Ash (<i>Fraxinus americana</i>)	X	3
21	White Oak (<i>Quercus alba</i>)	X	3
22	White Spruce (<i>Picea glauca</i>)	X	3



Appendix - Vegetation Species Significance and Status

#	Common Name (Scientific Name)	Rarity/Status ²			CoC
		Federal	Provincial		
		SARA	SARO	S-Rank	
1	Basswood (<i>Tilia americana</i>)			S5	4
2	Black Walnut (<i>Juglans nigra</i>)			S4?	5
3	Bull Thistle (<i>Cirsium vulgare</i>)			SNA	0
4	Canada Avens (<i>Geum canadense</i>)			S5	3
5	Chokecherry (<i>Prunus virginiana</i> var. <i>virginiana</i>)			S5	2
6	Common Mullein (<i>Verbascum thapsus</i> ssp. <i>thapsus</i>)			SNA	0
7	Eastern Prickly Gooseberry (<i>Ribes cynosbati</i>)			S5	4
8	European Buckthorn (<i>Rhamnus cathartica</i>)			SNA	0
9	Large-toothed Aspen (<i>Populus grandidentata</i>)			S5	5
10	Northern Red Oak (<i>Quercus rubra</i>)			S5	6
11	Norway Maple (<i>Acer platanoides</i>)			SNA	0
12	Norway Spruce (<i>Picea abies</i>)			SNA	0
13	Poison Ivy (<i>Toxicodendron radicans</i>)			S5	2
14	Riverbank Grape (<i>Vitis riparia</i>)			S5	0
15	Spreading Dogbane (<i>Apocynum androsaemifolium</i>)			S5	3
16	Staghorn Sumac (<i>Rhus typhina</i>)			S5	1
17	Sugar Maple (<i>Acer saccharum</i>)			S5	4
18	Tatarian Honeysuckle (<i>Lonicera tatarica</i>)			SNA	0
19	Virginia Creeper (<i>Parthenocissus quinquefolia</i>)			S4?	6
20	White Ash (<i>Fraxinus americana</i>)			S4	4
21	White Oak (<i>Quercus alba</i>)			S5	6
22	White Spruce (<i>Picea glauca</i>)			S5	6



Environmental Impact Study – 20 Rose Street, City of Barrie, Ontario
County of Simcoe
Cambium Reference: 18918-001

Notes:

CC - Coefficient of Conservatism. Assigned on a scale of 1-10, with 0 being the least conservative and 10 being the most conservative.

CW - Coefficient of Wetness. Assigned on a scale of 5 to -5, with 5 indicating a preference for upland habitats and -5 indicating a preference for wetland habitats.

SARA - Species at Risk Act

SARO - Species at Risk in Ontario

SC - Special Concern

THR - Threatened

END - Endangered

NAR - Not at risk

S-Rank - Provincial rank used by the Natural Heritage Information Centre to prioritize protection efforts

S1 - Extremely rare in Ontario

S2 - Very rare in Ontario

S3 - Rare to uncommon in Ontario

S4 - Considered to be common in Ontario

S5 - Species is widespread in Ontario

SNA - Not Applicable (typically introduced species)

"?" - Indicates uncertainty in classification due to lack of information



Scoped Environmental Impact Study – 20 Rose Street, City of Barrie, Ontario
County of Simcoe Housing Corporation
Cambium Reference: 18918-001
December 21, 2023

Appendix E

Significant Wildlife Habitat Assessment



Appendix: Significant Wildlife Screening - Ecozone 6E

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 MAM5	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	N/A
Turtle Wintering Area	Turtles	SW, MA, OA, SA, FE0, 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	N/A
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	N/A
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	N/A
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	N/A
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, FE01, 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	N/A
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	N/A
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	N/A