Scoped Environmental Impact Study and Restoration Plan – Lot 82, Fire Route 213, Trent Lakes, Ontario

September 20, 2023

Prepared for:
Greg and Karen Lennie

Cambium Reference: *17408-001*

CAMBIUM INC.

866.217.7900

cambium-inc.com

Table of Contents

List of Inserted Tables

List of Appended Figures

List of Appendices

1.0 Introduction

Cambium Inc. (Cambium) is pleased to provide Greg and Karen Lennie (the Client) with the following Scoped Environmental Impact Study and Restoration Plan for Lot 82, Fire Route 213, in the Municipality of Trent Lakes, Ontario. The subject property is currently occupied by an existing cottage and associated infrastructure (i.e., septic system, gravel driveway, and boat house). We understand that the Client is planning to relocate the existing cottage to the eastern corner of the property and build a new cottage, east of the existing cottage. Given the location and scale of the proposed development, the shoreline area fronting Catchacoma Lake will be considered the Site for the purpose of the Study (see Figure 1).

The following scoped Environmental Impact Study and Restoration Plan (EIS; the Study) serves to address potential impacts to natural heritage features identified during the preliminary development review process, as required by the Municipality of Trent Lakes. The Site contains or is adjacent to (within 120 m of) the following mapped natural heritage and/or hydrologic features: Catchacoma Lake and Wildlife Concentration Area. The Site is within Ecoregion 5E of Ontario (Crins, Gray, Uhlig, & Wester, 2009) and is located outside of local Settlement Area boundaries.

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 Terms of Reference

The Terms of Reference (TOR) for the Study were circulated to Municipality of Trent Lakes and a response was received dated March 17, 2023. Relevant correspondence and documentation are included in Appendix A.

1.2 Summary of Proposed Development

The Site is approximately 0.30 hectares (ha) in size, developed with one existing cottage and associated infrastructure (i.e., septic, gravel driveway, and boat house) and used for residential purposes. Surrounding properties are used for residential purposes.

The Client intends to relocate the existing cottage to the eastern corner of the Site and build a new cottage, east of the existing cottage, winch includes a deck and garage. A Conceptual Site Plan is provided in Appendix B. This Site Plan is preliminary and was used for the purpose of scoping the Study. Note that any Site Plans submitted in support of permit applications should include the recommendations provided herein.

2.0 Natural Heritage Policy Context

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

- Provincial Policy Statement, 2020 (PPS)
- Growth Plan for the Greater Golden Horseshoe (GPGGH), 2020
- The County of Peterborough Official Plan, 2022, The Municipality of Trent Lakes Official Plan, 2013, and Trent Lakes Zoning By-Law B2014-070, 2014
- *Endangered Species Act*, 2007 (ESA)
- *Fisheries Act*
- *Species at Risk Act* (SARA)
- *Migratory Birds Convention Act*, 1994 (MBCA)

This Study includes an assessment of conformity of the proposed development with relevant natural heritage policies. A summary of policy conformity is included in Section 7.0.

2.1 Provincial Policy Statement, 2020

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

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

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

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

2.2 Growth Plan for the Greater Golden Horseshoe, 2020

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

The GPGGH contains policies regarding a provincial Natural Heritage System (NHS), key hydrologic features (KHFs), key hydrologic areas (KHAs), and key natural heritage features

(KNHFs) (Table 1). Policies that reference the provincial NHS apply once the municipal Official Plan has incorporated the provincial NHS into their schedules; until that time, outside of settlement areas, the policies that reference the NHS will apply to the natural heritage systems identified in Official Plans that were approved and in effect as of July 1, 2017, to the extent that such systems existed at that time. Section 4.2.3 of the GPGGH states that, outside of settlement areas, development or site alteration is generally not permitted in KNHFs that are part of the NHS or in KHFs. Section 4.2.4 states that, outside of settlement areas, a proposal for new development or site alteration within 120 metres of a KNHF within the NHS or a KHF will require a Natural Heritage Evaluation or Hydrologic Evaluation that identifies a suitable vegetation protection zone (i.e., a development setback). For KHFs, fish habitat, and significant woodlands the vegetation protection zone can be no less than 30 m measured from the outside boundary of the feature.

Table 1 Protected Features of the GPGGH

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

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

2.3 Official Plan and Zoning By-Law

The land use designations and zoning of the Site are summarized in Table 2:

Table 2 Summary of Municipal Official Plan and Zoning By-law Designations

Source	Designation / Zoning
Official Plan – County of Peterborough	Shoreline Residential-Private Access (SR-PA)
Official Plan – Municipality of Trent Lakes	Recreational Dwelling
Zoning By-law – Trent Lakes Zoning By-Law B2014-070	Shoreline Residential-Private Access (SR-PA)

A summary of conformity with the relevant policies is included in Section 7.0.

2.4 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* (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.

2.5 Fisheries Act

Fisheries and Oceans Canada (DFO) administers the federal *Fisheries Act* which defines fish habitat as "*spawning grounds and other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes*" (Subsection 2(1)). Works within and adjacent to lakes, watercourses, and other bodies of water containing fish have the potential to impact fish and/or fish habitat. The Fisheries Act prohibits the harmful alteration, disruption, or destruction (HADD) of fish habitat (Subsection 35(1)), which is defined as "*any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes*".

As a result of amendments to the Fisheries Act in 2019, projects near water that could potentially impact fish or fish habitat may require DFO review. The primary purpose of the

review is to determine whether HADD of fish habitat, as defined by the Act, can be avoided. The DFO Fisheries Protection Program provides a Decision Framework and guidance material applicable to these reviews (available on-line at www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html).

Fish habitat occurs in the following locations on or adjacent to the Site: Catchacoma Lake.

2.6 Species at Risk Act

The federal *Species at Risk Act* (SARA) was adopted in 2002 to prevent endangered or threatened species from becoming extinct or extirpated, to help in the recovery of endangered, threatened and extirpated species, and to manage species of special concern to help prevent them from becoming endangered or threatened. Habitat which is deemed necessary for the survival/recovery of a listed wildlife species, referred to as Critical Habitat, is protected under Section 56 of the SARA. The SARA applies to all federal lands in Canada; however, at-risk aquatic and migratory bird species located on private property in Ontario also receive protection under the Act.

2.7 Migratory Birds Convention Act, 1994

The federal *Migratory Birds Convention Act* (MBCA) prohibits killing, capturing, injuring, taking, or disturbing of the listed migratory birds. Including 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 offer year-round protection for 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 12-36 months.

To ensure compliance with the MBCA during development, best management practices should be implemented to detect and avoid disturbances to active nests of listed species. Active nests are protected and should be left undisturbed until all young have fledged, the nest is determined by a professional to be inactive or abandoned.

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, 2023)
- 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)
- Aquatic Species at Risk distribution maps (Fisheries and Oceans Canada, 2023)
- Aquatic Resource Area Summary Data (Government of Ontario, 2023)
- Fish ON-Line (Ministry of Natural Resources and Forestry, 2022)
- Other sources (e.g., Conservation Authority maps and regulations, subwatershed studies, fisheries management plans)
- Technical Reports previously completed – Cambium Reports, other documentation provided by Client or available on-line

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 3.

Table 3 Background Review Summary

Source	Location Reference	Relevant Records
LIO Geographic Database	Site and 120 m adjacent lands	NEP, ORM, and Greenbelt do not apply to this site.
NHIC Database	17QK1357	Colonial Waterbird Nesting Area Eastern Wood-peewee – SC
Ontario Breeding Bird Atlas (OBBA)	17TQK15	Incorporated into list of species within Appendix C
Ontario Reptile and Amphibian Atlas (ORAA)	17QK15	Incorporated into list of species within Appendix C
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" and was used to guide the SAR habitat-based screening for the Study.

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

3.3 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). A description of CC values is provided in Table 4.

Table 4 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 Aquatic Habitat Assessment

Aquatic habitat surveys were completed to identify and map all aquatic features on Site, including waterbodies, watercourses (permanent and intermittent), seeps, springs, and overland drainage paths. Aerial photography and topographical mapping sources were reviewed to identify hydrologically connected aquatic features on adjacent lands that were inaccessible during the field assessments. On-site features were characterized based on in-stream and riparian cover, channel structure/morphology, substrates, flow, and hydrologic characteristics, as well as general documentation of channel instability, erosion/sedimentation, groundwater, and flow permanency indicators. If present, crossing features including bridges, culverts, and bed-level crossings were noted and georeferenced in the field. Standard assessment methods and technical criteria referenced in the Ontario Stream Assessment Protocol (Ministry of Natural Resources and Forestry, 2017) were applied to wadeable streams. All identified aquatic features were assessed to determine their potential function as

fish habitat, with particular consideration to sensitive, limiting, or critical habitat, such as spawning locations, overwintering habitat, and migratory corridors. Fish observations, habitat connectivity, and barriers to fish movement were documented, when present, to provide regional context to their function within the general aquatic network and sub-watershed.

3.3.3 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 5. Representative site photos are included within the Photo Log in Appendix D. Survey stations/areas are shown on Figure 2.

Table 5 Summary of Field Investigations

Date	Time On Site	Weather	Observer	Activities
2023-07-05	0930-1100	30°C, Wind: 1, Clear Sky, Noise: 0	T. Jamieson	Ecological Land Classification Aquatic Habitat Assessment Habitat-Based 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 Ontario Shield Ecozone: Georgian Bay Ecoregion 5E, which is located in south-central Ontario, extending southeast from Lake Superior to the central portion of the Ottawa River valley in the east, including Parry Sound, Perth, North Bay, Sudbury, and Sault Ste. Marie. This Ecoregion is characterized by frequently exposed bedrock, shallow soils, and mixed forests representative of the Great Lakes – St. Lawrence Forest Region (Lee, et al., 1998).

Overall, the Site northwest-facing and overland drainage is conveyed to Catchacoma Lake. A small cottage was documented in the western corner of the property, surrounded by a small area of mowed grass (0.004ha). A small (approx. 2m wide) sand beach was located along the

shoreline just west of the cottage. West of the beach, a floating dock extended out into Catchacoma Lake. A raised septic bed was located to the east of the current residence.

Publicly available imagery indicates the presence of a dock/boathouse at the eastern extent of the shoreline. This was not found to be present during the field investigations. However, a gap in the shoreline vegetation was noted at this area.

4.2 Vegetation Communities and Inventory

The Site currently consisted almost entirely of coniferous forest. The eastern portion of the Site appeared to have been historically cleared and is now inhabited by a shrub thicket community.

The vegetation communities on the Site are summarized in Table 6 and are mapped on Figure 2. A list of identified species for each community are provided in below.

Table 6 Vegetation Communities

No.	ELC Code	Community Description	Community Type	S -Rank
1	FOC3-1	Fresh – Moist Hemlock Forest (FOC3-1)	Terrestrial	S4S5
2	CUT1-5	Raspberry Cultural Thicket	Terrestrial	NA

The majority of the property consisted of Fresh – Moist Hemlock Forest (FOC3-1). This community consisted of mature trees with a relatively open understory. Ground vegetation cover was minimal and patchy. Tree cover was dominated by Eastern Hemlock with Paper Birch and Northern Red Oak associates. Additional species included American Beech, Sugar Maple, White Elm, Hobblebush, Striped Maple, Marginal Wood-fern, Purple-flowering Raspberry, Broad-leaved Helleborine, and Small Enchanter's Nightshade.

An area of Raspberry Cultural Thicket (CUT1-5) was identified in the eastern portion of the Site. This area appears to have been historically cleared and is now dominated by Raspberry shrubs. Additional species included Common Mullein, Oxeye Daisy, Goldenrod species, and Bull Thistle.

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

4.2.1 Soil Characterization

Soils were sampled using a hand auger, and moisture regimes were determined based on industry standard guidance. A summary of the soil characterization work on the Site is provided in Table 7, and soil core locations are illustrated on Figure 2.

Table 7 Soil Characterization Summary

No.	ELC Code	Soil Description	Effective Texture	Moisture Regime
1	FOC3-1	Soils were relatively thin (40cm max) and stoney and consisted of a deep pine-needle duff over very fine sand. No mottles or gley were observed.	Very Fine Sand	Mod. Fresh

4.3 Wildlife Survey Results

Given the relatively naturalized state of the Site and the surrounding area, it likely provides habitat for a range of mammal, reptile, amphibian, and bird species. Having frontage on Catchacoma Lake, the Site provides potential nesting habitat for turtles which may reside in the lake. However, no signs of current or historical turtle nesting were observed on the Site during field investigations.

4.4 Fish and Fish Habitat

Catchacoma Lake, supports a diverse fish community and provides thermal habitat conditions varying from warmwater to coldwater (in deep water areas). Appendix E includes a list of fish species known to occur in Catchacoma Lake, based on the background information review, and species-specific life history information.

Nearshore habitat conditions (within 10 m of the shoreline) were homogenous in the area fronting the Site and consistent with those of neighbouring properties. Substrates consisted of approximately 25% cobble, 70% sand, and 5% detritus. Water depth was less than 50 cm at approximately 5 m from shore. Overhanging trees along approximately 90% of the shoreline provided overhead cover. No aquatic vegetation was observed in the nearshore area. The inferred thermal habitat in the nearshore area is warmwater to coolwater. This area did not appear to be suitable as spawning habitat for Lake Trout.

The riparian area adjacent to Catchacoma Lake was occupied by forest cover (FOC3-1), with mature trees and an open understory. Tree species included Eastern Hemlock (*Tsuga canadensis*), and Paper Birch (*Betula papyrifera*). Very little understory and ground cover was present at the time of the site visit.

We note that baitfish were observed foraging on the water's surface in the embayment located northeast of the Site.

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, supplemented with targeted field surveys when necessary, in order to identify suitable habitat for species located on or adjacent to the Site. A detailed habitat suitability analysis is provided in Appendix C and a discussion of the results is provided below.

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

4.5.1 Endangered and Threatened Species

The habitat of endangered (END) and threatened (THR) species is regulated under the ESA, 2007, and associated regulations. The following endangered and threatened 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 determine whether the Site is actively used by any of the species listed below.

Cerulean Warbler is listed as endangered federally and threatened provincially. They spend their summers (breeding seasons) in mature, deciduous forests with large, tall trees and an open under storey. The communities present on-site would not support Cerulean Warbler as community FOC3-1 consists of a fresh hemlock coniferous forest with limited under story. Adjacent lands may support breeding and foraging. Cerulean Warblers were not observed during field visits.

Eastern Hog-nosed Snake is listed as threatened both federally and provincially. Eastern Hog-nosed Snakes prefer sandy, well-drained habitats such as beaches and dry forests where they can lay their eggs and hibernate as in FOC3-1, a fresh hemlock coniferous forest on-site and adjacent properties. Eastern Hog-nosed Snakes were not observed during field visits.

Blanding's Turtle is listed as endangered federally and threatened provincially. They spend most of their life cycle in large wetlands or shallow lakes with high densities of water plants, nutrient rich water, and organic sediment. They use fields, dry coniferous and mixed forest habitats for nesting. Blanding's Turtles were not observed during field investigations and the nearshore area would not be considered ideal nesting habitat.

The Site may provide habitat for the following bat species: Tri-coloured Bat (*Perimyotis subflavus*), Eastern Small-footed Myotis (*Myotis leibii*), and Little Brown Myotis (*Myotis lucifugus*). No suitable cavity trees for bat maternity roosting were observed on the Site; however, suitable habitat may be present on adjacent lands. Open areas of the Site may be used as foraging habitat for these species; however, foraging habitat is not protected under the ESA. As such, there is no protected habitat for SAR bats on the Site. No SAR bats or evidence of bats was observed on the Site. Avoidance and mitigation measures relating to the general protection of bats are provided in Section 5.3.3.

The Western Chorus Frog is listed as threatened federally, but currently not listed provincially no suitable breeding habitat for this species was identified on the Site.

4.5.2 Special Concern Species

The background review identified records for the following additional species of special concern (SC) within 1 km of the Site: Bald Eagle, Eastern Wood-pewee, Wood Thrush, Northern Map Turtle, and Snapping Turtle. Habitat requirements for each species are presented in Appendix C.

The Site contains large trees in close proximity to a lake, as such provides potential nesting and foraging habitat for Bald Eagle; however, no large stick nests were found on site during Site visits, and no Bald Eagles were observed during the field investigations.

The majority of the Site is forested and is connected to a larger area of forest that extends beyond the property boundaries. As such, the Site and adjacent lands provide potential habitat for Eastern Wood-pewee and Wood Thrush. These species were not identified during the field investigations.

Catchacoma Lake provides potential habitat for turtles, including Northern Map Turtle and Snapping Turtle. Given the proximity of the Site to the lake, and the presence of sandy soils, the Site may provide potential nesting habitat for these species. No Northern Map Turtles or Snapping Turtles were observed during field investigations, and no signs of historical or current turtle nesting were identified.

5.0 Impact Assessment and Mitigation Measures

The Site is approximately 0.30 ha in size, developed with one existing cottage and associated infrastructure, and used for shoreline residential purposes. Surrounding properties are used for shoreline residential purposes.

The Client intends to relocate the existing cottage to the eastern corner of the Site and build a new cottage, east of the existing cottage winch includes a deck and garage. In summary, the following protected features were identified on and adjacent to the Site:

- Catchacoma Lake
- Habitat for Species of Conservation Concern.

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 Inland Lakes and Their Littoral Zones

The disturbance of soil during construction can increase the potential for erosion and sedimentation in adjacent waterbodies. 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.

5.2 Fish Habitat

Fish habitat was identified in Catchacoma Lake. An increase in erosion and sedimentation due to construction activities can impact water quality and near-shore fish spawning areas. Recommendations regarding the installation of sediment fencing provided in Section 5.2 should sufficiently mitigate potential impacts to fish habitat.

5.3 Species of Conservation Concern

Results from the background review and field investigations revealed potential habitat for a range of species of special concern, including birds, turtles, snakes and bats may exist on the site and/or adjacent lands:

- Cerulean Warbler (THR)
- Bald Eagle (SC)
- Eastern Wood-pewee (SC)
- Wood Thrush (SC)
- Eastern Hog-nosed Snake (THR)
- Blanding's Turtle (THR)
- Northern Map Turtle (SC)
- Snapping Turtle (SC)
- Tri-coloured Bat (END)
- Eastern Small-footed Myotis (END)
- Little Brown Myotis (END)

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.

Recommendations regarding mitigation measures for these species and their habitats are provided below.

5.3.1 Birds

The proposed development will require the removal of several large trees, which may impact bird species and their habitat. Tree removal should be limited to the building envelope to the extent possible.

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

If vegetation clearing or construction is to occur between April 15 and August 15, 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.

5.3.2 Reptiles

Turtles and snakes are particularly vulnerable to construction-related impacts on sites adjacent to wetlands, watercourses, and waterbodies.

Sediment fencing can function as wildlife exclusion fencing. To exclude wildlife from the Site, sediment fencing should be installed around the entire perimeter of the construction area prior

to the earlier of May 1 or commencement of Site preparation to keep turtles and snakes from entering the construction area. This fencing should be made of light-duty sediment fence, staked at regular intervals, trenched-in at least 10-20 cm below ground, with an above ground height of at least 60 cm. The sediment fence should be inspected regularly to ensure that it remains in good condition: and any downed areas, rips, or holes should be repaired or replaced immediately. A designated point of ingress/egress should be identified, and a moveable barrier be constructed, to allow for the Site to fully remain enclosed while allowing vehicular access to the Site as needed.

The construction area should also be actively inspected for turtles and snakes each day prior to the start of work throughout the duration of construction.

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

5.3.3 Bats

Tree removal should be limited to the building envelope to the extent possible. Small scale tree removal will not result in impairing or eliminating the function of habitat to support bat life processes provided the tree removal avoids the active bat season (April 1 – September 30).

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.

6.0 Opportunities for Restoration and Enhancement

Given that the proposed development includes the expansion of the current residence footprint, restoration/enhancement plantings are recommended to bolster vegetation cover at the Site. Two potential areas for restoration/enhancement plantings were identified on the Site (Figure 3): the shoreline of Catchacoma Lake, and the CUT1-5 community located in the eastern corner of the property. The following sections provide recommendations regarding restoration/enhancement plantings for these areas, including site preparation, planting densities, and species recommendations. Finally, an adaptive management plan is recommended to ensure the long-term success of the restoration/enhancement activities.

For restoration to be successful, it is essential that appropriate vegetation materials are selected. All vegetation materials should be native to the area and sourced as locally as possible. As such, species for the revegetation activities were selected based on those observed during the field investigations. A list of appropriate species is provided in Table 8. A Conceptual Planting Plan is appended to this letter (see Figure 3).

6.1 Shoreline Enhancement

Enhancement plantings are recommended to bolster vegetation cover in the understory along the shoreline of Catchacoma Lake. The shoreline enhancement area is defined as the area within 10 m of the shoreline (0.05 ha). It should be noted that the area of the historical boat house is included in this area. It should also be noted that the shoreline enhancement area does not include the sandy beach and current dock. This will allow access to these areas to continue following implementation of the Plan.

Trees and shrubs should be planted at a relatively low density (500 per ha; 25 total) at a 1:1 ratio. Plantings should be spaced at least 3.5 m apart. Shrubs should be planted in groups of two or three of the same species. It is noted that soils along the shoreline were relatively thin in places. Plantings should concentrate on areas with suitable soil depths. Plantings should also concentrate on the area of the historical boat house.

A list of suitable species in provided in Table 8.

6.2 Cultural Thicket Area

The CUT1-5 community in the eastern corner of the property is currently dominated by raspberry cane. Although this species is native to the area, and provides potential foraging opportunities for wildlife, this species tends to dominate areas, preventing the establishment of trees. As such enhancement plantings are recommended for this area. The planting area is defined as the CUT1-5, excluding the area of the relocated cottage (0.04 ha)

Prior to planting activities, it is recommended that the raspberry cane be cleared using a bush hog. It is noted that the proposed development includes the relocation of the existing cottage to this area, and it is anticipated that clearing will be required for the relocation. Intermittent mowing may be required to reduce competition for the planted trees.

Trees should be planted at a low density (500 per ha; 20 total). Trees should be planted at least 3.5 m apart. Trees may be planted opportunistically where soils are the appropriate depth for planting.

A list of suitable species in provided in Table 8.

Table 8 Summary of Plant Materials

Common Name	Scientific Name	Quantity	Size/Stock
Shoreline Enhancement (0.05ha)			
Alternate Dogwood	*Cornus alternifolia*	5	2 year seedling (30-45 cm)
Witchhazel	*Hammamelis virginiana*	5	2 year seedling (30-45 cm)
Eastern White Cedar	*Thuja occidentalis*	5	2 year seedling (15-25 cm)
Eastern Hemlock	*Tsuga canadensis*	5	Plug Grown (15 cm)
Purple Flowering Raspberry	*Rubus odoratus*	5	2 year seedling (30-45 cm)
Cultural Thicket Area (0.04ha)			
Sugar Maple	*Acer saccharum*	5	2 year seedling (45-60 cm)
Paper Birch	*Betula papyrifera*	5	1 year seedling (45-60 cm)
Black Cherry	*Prunus Serotina*	5	2 year seedling (45-60 cm)
Red Oak	*Quercus rubra*	5	2 year seedling (45-60 cm)

6.3 Planting Best Management Practices

Trees and shrubs should be planted randomly throughout the restoration areas to emulate a naturally established community and as the existing conditions allow (i.e., avoiding excessively thin soils). Shrubs can be planted in groups of 2 or 3 of the same species to create areas of dense shrub cover. Planting should occur in the early spring, prior to leaf out, or early fall after leaf drop. All tree and shrub plantings should be mulched to limit competition of herbaceous plants and grass using a partially composted seed-free mulch with no dye or fresh wood chips prepared from woody debris on-site. Mulch application rates should be a maximum depth of 5 - 7 cm and a radius of 30 - 40 cm. Trees should be fitted with plastic tree guards to reduce

grazing pressure from herbivores. Trees and shrubs may require intermittent watering during the dry summer months.

All planting activities should be undertaken by a landscape contractor who has experience in restoration projects and planting best practices. Any changes to the Restoration Plan due to unforeseen circumstances should be approved by a qualified ecologist. The Landscaping contractor is to provide at least three days' notice to the qualified ecologist should they require a substitute species or quantity than those detailed in the restoration plan. Substitutions will be identified by the Ecologist and provided to the contractor for their acquisition and installation.

6.4 Adaptive Monitoring Plan

It is recommended that an Adaptive Monitoring Plan (AMP) be implemented for the restoration areas. Monitoring should be completed by a qualified ecologist. Monitoring should occur directly after the plantings have been completed to ensure that they have been completed as prescribed. An additional monitoring event should occur during the growing season of the following year. A 70% survival rate for planted trees and shrubs should be achieved. Replacement plantings may be required to bring the total number of living plants to 70%, ensuring survival is spread between trees and shrubs. The restoration areas should also be monitored for the presence of invasive species. Should invasive species be found, recommendations regarding methods for removal and management will be provided. Monitoring results should be reported to municipality at the end of each of the two monitoring events.

6.5 Plant Material Suppliers

Below is a list of potential contractors and suppliers – these are provided as guidance and other sources of native stock can be used.

Contractors:

- Green Side Up Environmental Services and Landscaping: Omemee, ON: 289-892-2827

Trees and Shrubs:

- Richardson's Pineneedle Farms: Pontypool, ON: 705.277.9993
- Kobes Nursery: Bowmanville, ON: 905.263.8814
- Uxbridge Nurseries: Brooklin, ON: 905.655.3379

7.0 Policy Conformity

As noted through the initial municipal planning review, the proposed infill development on Catchacoma Lake (an inland lake) will be permitted to occur in accordance with Section 4.2.4.5 a) and b) of the GPGGH, which states:

> *Outside of settlement areas, in developed shoreline areas of inland lakes that are designated or zoned for concentrations of development as of July 1, 2017, infill development, redevelopment and resort development is permitted, subject to municipal and agency planning and regulatory requirements, if the development will:*
>
> *a) be integrated with existing or proposed parks and trails, and will not constrain ongoing or planned stewardship and remediation efforts;*
>
> *b) restore, to the maximum extent possible, the ecological features and functions in developed shoreline areas; and*
>
> *c) in the case of redevelopment and resort development:*
>
> *i. establish, or increase the extent and width of, a vegetation protection zone along the shoreline to a minimum of 30 metres;*
>
> *ii. increase the extent of fish habitat in the littoral zone;*
>
> *iii. be planned, designed, and constructed to protect hydrologic functions, minimize erosion, and avoid or mitigate sedimentation and the introduction of nutrient or other pollutants into the lake;*
>
> *iv. exclude shoreline structures that will impede the natural flow of water or exacerbate algae concerns along the shoreline;*
>
> *v. enhance the ability of native plants and animals to use the shoreline as both wildlife habitat and a movement corridor;*
>
> *vi. use lot-level stormwater controls to reduce stormwater runoff volumes and pollutant loadings; vii. use natural shoreline treatments, where practical, for shoreline stabilization, erosion control, or protection;*

viii. meet other criteria and direction set out in applicable watershed planning and subwatershed plans;

ix. be serviced by sewage works which reduce nutrient inputs to groundwater and the lake from baseline levels; and

x. demonstrate available capacity in the receiving water body based on inputs from existing and approved development.

To the best of our knowledge, there are no existing or proposed parks or trails or planned stewardship or remediation efforts on the subject Site. As such, the proposed development conforms with 4.2.4.5 (a) of the GPGGH. Through the implementation of the recommended Restoration Plan described herein, the proposed development will effectively restore, to the maximum extent possible, the ecological features and functions in the developed shoreline area, in conformance with Section 4.2.4.5 (b) of the GPGGH.

8.0 Summary of Recommendations

The following recommendations are provided for the proposed development:

1. All restoration activities detailed herein should be undertaken by an established contractor who has experience in ecological restoration or naturalization projects.
2. All required approvals and permits should be obtained prior to the commencement of any Site alteration / construction activities.
3. All development setbacks identified herein should be included on all future Site Plans.
4. 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). As such, clearing activity should occur between October 1 and March 31 of any calendar year. 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.*
5. All planting materials should be native and appropriately sources as described herein.
6. Trees and shrubs should be planted in the fall for best results. All tree and shrub plantings should be mulched to limit competition using a partially composted seed-free mulch with no dye at the application rates recommended herein
7. Any changes to the ecological restoration plan must be approved by the Ecologist. The contractor is to provide at least three days' notice to the Ecologist should the recommended species, size, and/or quantity not be commercially available. Substitutions will be identified by the Ecologist.
8. All equipment and machinery should be thoroughly cleaned prior to coming onto the site, according to guidance in the Clean Equipment Protocol for Industry.

9. An additional site visit should be conducted directly after the completion of the restoration activities to ensure they were completed as prescribed. The restoration areas should be monitored by a qualified ecologist once during the growing season of the year following completion to ensure overall success as described herein. Monitoring results should be reported to the Client after each monitoring event.

9.0 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 8.0 are followed. These recommendations include a comprehensive Restoration Plan for the Site. 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 conforms with applicable provincial policy.

Respectfully submitted,

Cambium Inc.

Jeremy Prahl, B.Sc., EP, Can-CISEC
Senior Ecologist / Group Manager

Tyler Jamieson, M.Sc.
Ecologist

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11.0 Glossary of Terms

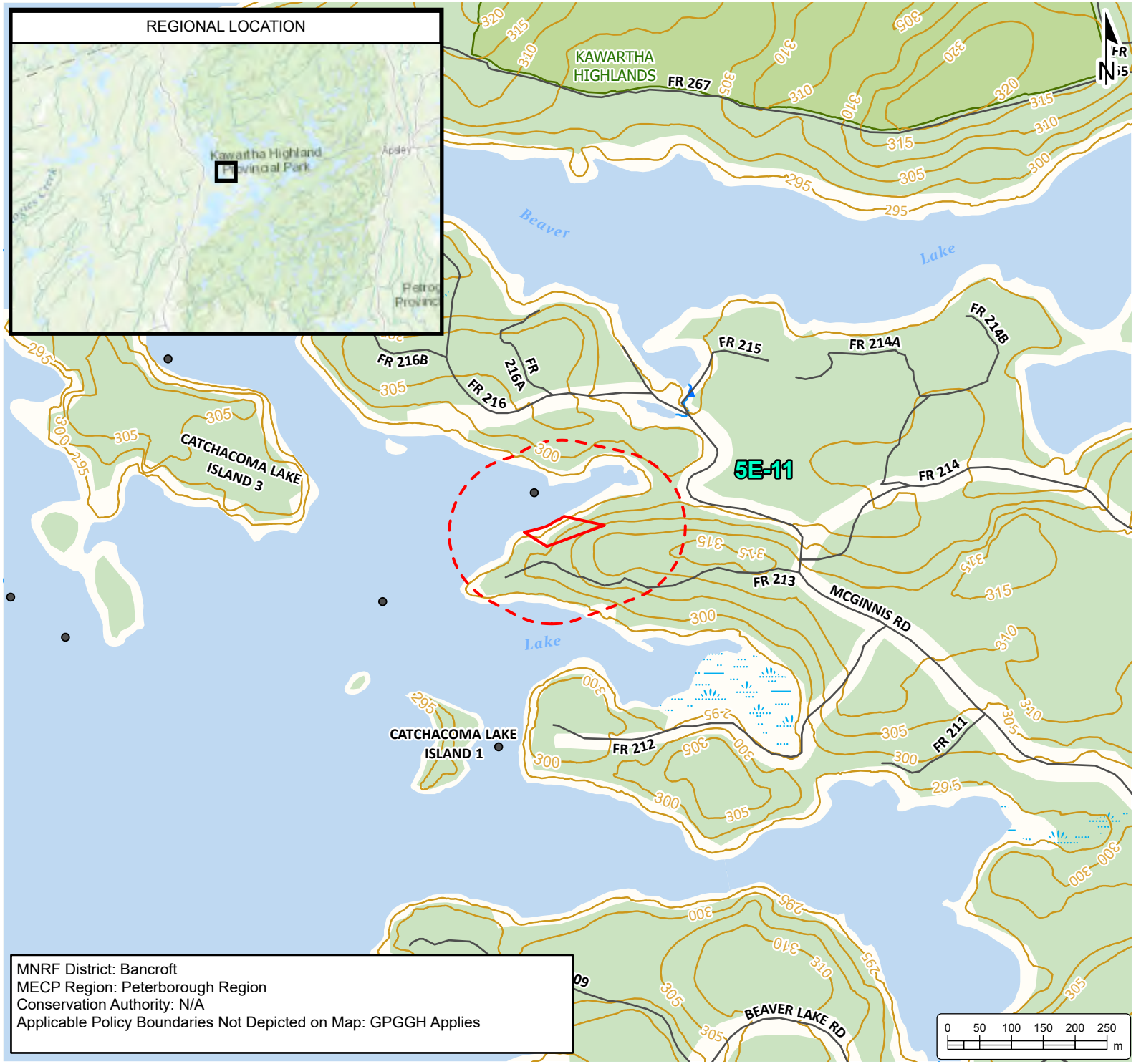
ANSI: Area of Natural and Scientific Interest
ARA: Aquatic Resources Area
ARA: Aggregate Resources Act
AS: Agricultural System
ATK: Aboriginal Traditional Knowledge
BMA: Bear Management Area
BMP: Best Management Practice
CA: Conservation Authority
CEAA: Canadian Environmental Assessment Act/Agency
CFA: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

ENVIRONMENTAL IMPACT STUDY AND RESTORATION PLAN

GREG AND KAREN LENNIE
Lot 82, Fire Route 213
Trent Lakes, Ontario



LEGEND

- Aquatic Resource Survey Point
- Minor Road
- Contour 5m Interval (Major)
- Contour 5m Interval (Minor)
- Watercourse, Permanent
- Water Area
- Ecodistrict
- Provincial Park
- Wooded Area
- Site (approximate)
- Adjacent Lands (120m)

Notes:
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194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
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LANDSCAPE SETTING AND POLICY AREAS

Project No.: 17408-001		Date: September 2023	Rev.:
Scale: 1:8,500		Projection: NAD 1983 UTM Zone 17N	
Created by: DBB	Checked by: JP	Figure: 1	

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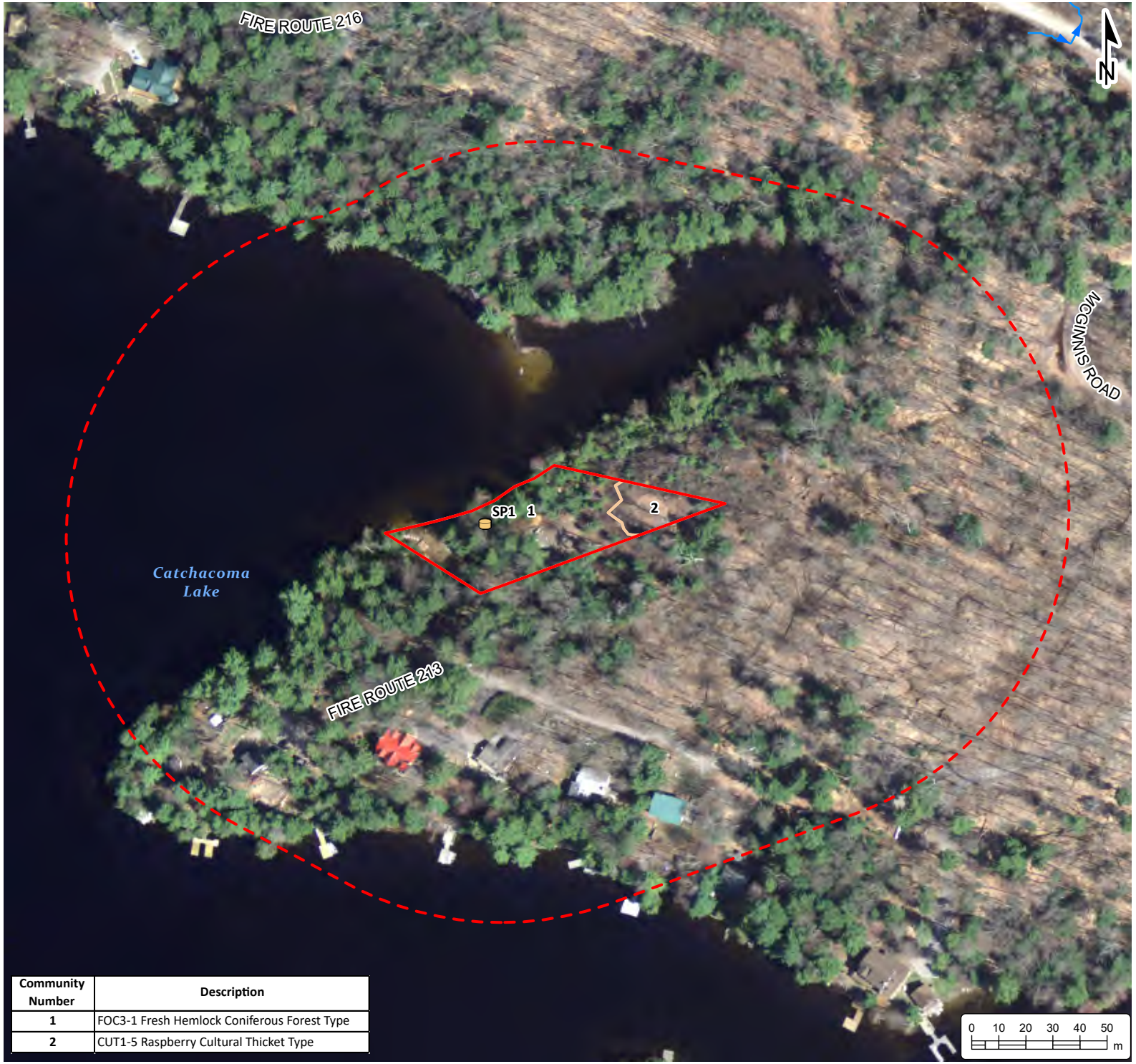

Community Number	Description
1	FOC3-1 Fresh Hemlock Coniferous Forest Type
2	CUT1-5 Raspberry Cultural Thicket Type

ENVIRONMENTAL IMPACT STUDY AND RESTORATION PLAN

GREG AND KAREN LENNIE
Lot 82, Fire Route 213
Trent Lakes, Ontario

LEGEND

- Soil Point
- Vegetation Community
- Adjacent Lands (120m)
- Site (approximate)

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NATURAL HERITAGE FEATURES AND ECOLOGICAL SURVEY STATIONS

Project No.: 17408-001		Date: September 2023 Rev.:	
Scale: 1:2,000		Projection: NAD 1983 UTM Zone 17N	
Created by: DBB	Checked by: JP	Figure:	2

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ENVIRONMENTAL IMPACT STUDY AND RESTORATION PLAN

GREG AND KAREN LENNIE
Lot 82, Fire Route 213
Trent Lakes, Ontario

LEGEND

- New Cottage
- Breezeway
- New Deck
- New Garage
- Relocated Existing Cottage
- Relocated Existing Deck
- Previous Boat House Location
- Shoreline Enhancement Area
- Cultural Thicket
- Site (approximate)

Notes:
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CONCEPTUAL RESTORATION PLAN

Project No.: 17408-001		Date: September 2023 Rev.:	
Scale: 1:750		Projection: NAD 1983 UTM Zone 17N	
Created by: DBB	Checked by: JP	Figure:	3

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Appendix A
Correspondence

David Fleming

From: Sarah Dilamarter <SDilamarter@trentlakes.ca>
Sent: March 17, 2023 10:45 AM
To: Myles Latter
Cc: Cambium Admin
Subject: RE: ToR - Shoreline Restoration Plan - Fire Route #213, Lot #82, Trent Lakes (17408-001)

Good morning Myles,

This sounds excellent. I appreciate you taking the time to reach out to me. I look forward to reviewing the study.

Kind regards,

Sarah Dilamarter
Municipality of Trent Lakes
Junior Planner
760 Peterborough County Road 36
Trent Lakes, ON, K0M 1A0
705-738-3800 x 246
705-738-3801 fax
www.trentlakes.ca

From: Myles Latter <Myles.Latter@cambium-inc.com>
Sent: March 16, 2023 3:30 PM
To: Sarah Dilamarter <SDilamarter@trentlakes.ca>
Cc: Cambium Admin <file@cambium-inc.com>
Subject: ToR - Shoreline Restoration Plan - Fire Route #213, Lot #82, Trent Lakes (17408-001)

Good afternoon Sarah,

Cambium was retained by Greg and Karen Lennie to conduct a Shoreline Restoration Plan (SRP) at Lot 82, Fire Route 213, Trent Lakes, Ontario. The proposed development includes relocating the existing cottage within the eastern corner of the property, and building a new cottage east of the existing cottage. The Site is within 120 m of Catchacoma Lake.

We propose the following Terms of Reference for the EIS:

One site visit in 2023 to document natural features on the property, including:
• Classification of existing vegetation communities in the Study Area, according to the Ecological Land Classification System (ELC) for Southern Ontario (Lee, et al., 1998), and evaluation of their sensitivity, rarity, and botanical quality.

• Record observations of wildlife occurrences and assess wildlife habitat function on the Site. Any evidence of breeding, forage, shelter or nesting sites, and/or travel corridors will be noted. A habitat-based screening for SAR will be completed for the Site.
• Aquatic Habitat Survey under ice-free conditions to map and characterize surface water drainage.

We also propose a confirmation site visit when the Shoreline Restoration Plan has been implemented to confirm recommendations have been adhered to, regarding restoration efforts.

An SRP report that meets the requirements of the Growth Plan for the Greater Golden Horseshoe, 2020 (GPGGH), and local policies will be provided based on information collected through the background review and field studies. The report will include a summary of the proposed development, detailed mapping of natural features present on the Site, with special consideration of the littoral area of the shoreline, and provide a restoration plan utilizing best management practices and appropriate species lists for appropriate restoration efforts.

Please let me know if you have any questions or input with regards to this project.

Kind Regards,

CAMBIUM

Myles Latter, B.A. Hons., Dipl., C.E.T., CAN-CISEC
Project Coordinator
Cambium - Peterborough
705.957.5571
866.217.7900
cambium-inc.com

Environmental | Building Sciences | Geotechnical | Construction Quality Verification

Appendix B
Conceptual Site Plans

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. This survey and plan are correct and in accordance with The Surveys Act and The Surveyors Act and the regulations made under them.

2. The survey was completed on December 15th, 2009.

04 JANUARY 2010
PETERBOROUGH, ONTARIO ----------

JOHN S. DUNCAN
Ontario Land Surveyor

LEGEND & NOTES

- ☐ . . . . . DENOTES SURVEY MONUMENT, FOUND.
- ☐ . . . . . DENOTES SURVEY MONUMENT, PLANTED STAMPED 873.

WIT. . . . . DENOTES WITNESS
DEED . . . . . .DENOTES INST N° R146580.
DEED2. . . . . .DENOTES INST N° R368987.
873. . . . . DENOTES BENINGER SURVEYING LTD.
499. . . . . DENOTES H. MATHESON O.L.S.
P&P . . . . . .DENOTES PIERCE & PIERCE INC.
P&L . . . . . .DENOTES PIERCE & LYONS INC.
PLAN . . . . . .DENOTES PLAN 45R-4189.

CONTOUR ELEVATION OF 958.'09 SHOWN ON THIS PLAN IS THE BEST AVAILABLE EVIDENCE OF THE HIGH WATER MARK EXISTING AT THE TIME OF THE ORIGINAL SURVEY OF THE TOWNSHIP OF CAVENDISH.

CATCHACOMA LAKE IS ARTIFICIALLY REGULATED BY A DAM ON MISSISSAUGA LAKE IN LOT 31, CONCESSION 4, TOWNSHIP OF HARVEY TO A MAXIMUM ELEVATION OF 965.'64.

BENCH MARK SET ON DAM HAS AN ELEVATION OF 967.'60.

BEARINGS SHOWN HEREON ARE ASTRONOMIC, DERIVED FROM THE SOUTH LIMIT OF LOT 23, CONCESSION 5, SHOWN ON PLAN 45R-4189 AS HAVING A BEARING OF N71°52'00"E.

SURVEYOR'S REAL PROPERTY REPORT

THIS PLAN IS TO BE READ IN CONJUCTION WITH A LETTER DATED 05 JANUARY 2010.

THIS REPORT HAS BEEN PREPARED FOR THE USE OF GREGG LENNIE.

PLAN OF SURVEY

OF PART OF LOT 23
CONCESSION 5
GEOGRAPHIC TOWNSHIP OF CAVENDISH
TOWNSHIP OF GALWAY-CAVENDISH AND HARVEY
COUNTY OF PETERBOROUGH

SCALE - 1 INCH = 40 FEET

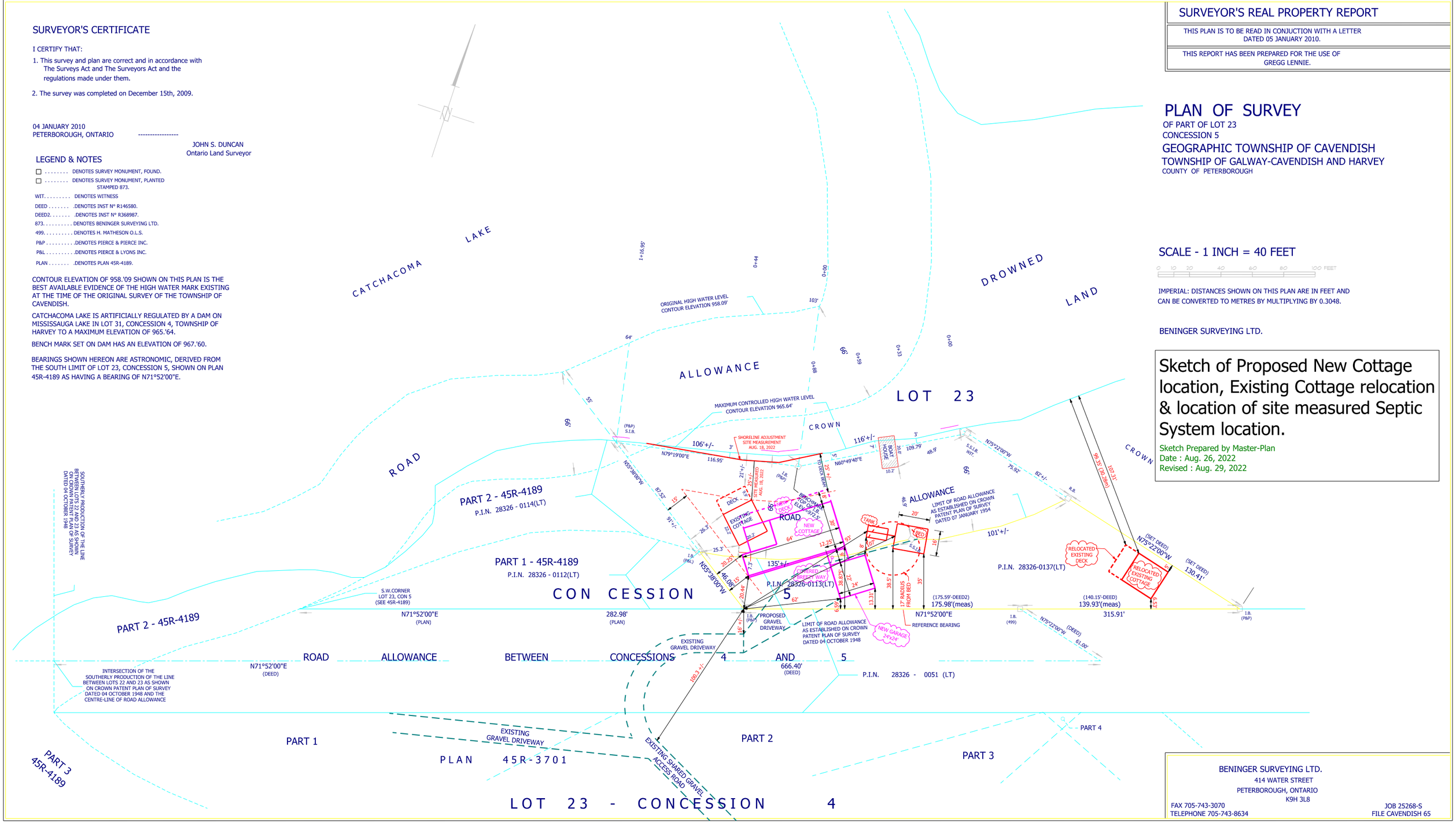
0 10 20 40 60 80 100 FEET

IMPERIAL: DISTANCES SHOWN ON THIS PLAN ARE IN FEET AND CAN BE CONVERTED TO METRES BY MULTIPLYING BY 0.3048.

BENINGER SURVEYING LTD.

Sketch of Proposed New Cottage location, Existing Cottage relocation & location of site measured Septic System location.

Sketch Prepared by Master-Plan
Date : Aug. 26, 2022
Revised : Aug. 29, 2022



BENINGER SURVEYING LTD.
414 WATER STREET
PETERBOROUGH, ONTARIO
K9H 3L8
FAX 705-743-3070
TELEPHONE 705-743-8634

JOB 25268-S
FILE CAVENDISH 65

Appendix C

Species of Conservation Concern Screening

APPENDIX C: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	Provincial S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Birds								
Bald Eagle	*Haliaeetus leucocephalus*	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).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential significant wildlife habitat on-site
Bank Swallow	*Riparia riparia*	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	*Hirundo rustica*	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	*Chlidonias niger*	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	*Dolichonyx oryzivorus*	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	*Cardellina canadensis*	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
Cerulean Warbler	*Setophaga cerulea*	END	THR	S3B	The Cerulean Warbler, a small songbird, is blue-green with white eyebrows and two prominent white wing bars (1). It requires relatively large tracts of mature deciduous forest (>100 ha), and nests in older, second-growth deciduous forests. During breeding season, it is found in relatively large tracts of mature deciduous forests that feature large, tall trees and an open understorey (4).	Yes: adjacent lands only	Known to occur in the general area	Consideration required under the ESA
Chimney Swift	*Chaetura pelagica*	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

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COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
Common Nighthawk	*Chordeiles minor*	THR	SC	S4B	The Common Nighthawk is a medium-sized bird with long, pointed wings, a long tail with a notch, and 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	*Sturnella magna*	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	*Antrostomus vociferus*	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	*Contopus virens*	SC	SC	S4B	The Eastern Wood-pewee is a species of 'flycatcher', a bird that eats flying insects. It grows to approximately 15 cm, has greyish-olive upper parts and pale bars on its wings. This species lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It prefers intermediate-age forest stands with little understory vegetation (1). It typically creates nests on tree branches 2-12 m in height (2).	Yes: on-site and adjacent lands	Known to occur in the general area	No further consideration required
Evening Grosbeak	*Coccothraustes vespertinus*	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	*Vermivora chrysoptera*	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	*Ammodramus savannarum*	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

APPENDIX C: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
Least Bittern	*Ixobrychus exilis*	THR	THR	S4B	The Least Bittern is a small member of the heron family, reaching around 30 cm in length. It has brown and beige plumage with chestnut patches on its wings (1). The species nests in marshes (> 5 - 10 ha) and swamps dominated by emergent vegetation, preferably cattails, interspersed with patches of woody vegetation and open water. They require dense vegetation and open water with stable levels within 10 m for nesting, and access to clear, open water for foraging (4).	No	Known to occur in the general area	No further consideration required
Loggerhead Shrike	*Lanius ludovicianus*	END	END	S2B	The Loggerhead Shrike is a small bird with a black, hooked bill, grey crown, and white throat and chest. This species has specific habitat requirements that are dependent on active livestock grazing, or grassland areas that have naturally short grass cover (i.e. alvar communities). They also require spiny, multi-branched shrubs, or barbed fencing, to catch prey. They prefer grassland habitats that have sporadic occurrences of low trees and shrubs; particularly hawthorn species, which are used as part of their feeding behaviour (1).	No	Known to occur in the general area	No further consideration required
Olive-sided Flycatcher	*Contopus cooperi*	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
Red-headed Woodpecker	*Melanerpes erythrocephalus*	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 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	*Asio flammeus*	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 agriultural 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	*Hylocichla mustelina*	THR	SC	S4B	The Wood Thrush is a medium-sized songbird of around 20 cm with rusty brown coloured upper parts and white underparts with large dark spots. It breeds in deciduous and mixed forests with moderate understories, shade and abundant leaf litter where it forages for food, including larval and adult insects as well as plant material. They prefer moist stands of trees with well-developed undergrowth and tall trees for perches (1).	Yes: adjacent lands only	Known to occur in the general area	Potential significant wildlife habitat on adjacent lands
Fish								
American Eel	*Anguilla rostrata*	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

APPENDIX C: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
Lake Sturgeon	*Acipenser fulvescens*	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 Sunfish (Great Lakes - Upper St. Lawrence population)	*Lepomis peltastes*	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
Herptiles								
Blanding's Turtle	*Emydoidea blandingii*	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).	Yes: adjacent lands only	Known to occur in the general area	Consideration required under the ESA
Eastern Musk Turtle	*Sternotherus odoratus*	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	*Chrysemys picta marginata*	SC	-	S4	The Midland Painted Turtle has a olive to black carapace with red or dark orange markings on the marginal scutes, as well as red and yellow stripes on the head and neck. The species uses a variety of waterbodies including, ponds, marshes, lakes and slow-moving creeks with a soft bottom and an abundance of basking sites and aquatic vegetation. This species usually hibernates on the bottom of waterbodies (5).	Yes: adjacent lands only	Known to occur in the general area	No further consideration required
Northern Map Turtle	*Graptemys geographica*	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).	Yes: adjacent lands only	Known to occur in the general area	Potential significant wildlife habitat on adjacent lands
Snapping Turtle	*Chelydra serpentina*	SC	SC	S3	The Snapping Turtle, with its large serrated carapace, small plastron, and spiked tail, is Canada's largest freshwater turtle (5). It spends the majority of its life in water, preferring shallow water with soft mud and leaf litter, and will travel upland to gravel or sandy embankments, roadsides, along railway lines or beaches to lay their eggs (1).	Yes: adjacent lands only	Known to occur in the general area	Potential significant wildlife habitat on adjacent lands

APPENDIX C: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
Spotted Turtle	*Clemmys guttata*	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	*Glyptemys insculpta*	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 Hog-nosed Snake	*Heterodon platirhinos*	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).	Yes: on-site and adjacent lands	Known to occur in the general area	Consideration required under the ESA
Eastern Milksnake	*Lampropeltis triangulum*	SC	NAR	S4	The Eastern Milksnake's colouration is grey or tan with reddish alternating blotches otlines in black along its back and sides (5). It has recently been delisted from being a species at risk in Ontario (1). This species tends to use open habitats such as rocky outcrops, fields and forest edges. The preferred prey of milksnakes are mice, small rodents, and ground nesting birds which are amply found in and surrounding agricultural outbuildings. The milksnake is secretive and is not likely to be encountered during the day or at night while hunting (5).	Yes: on-site and adjacent lands	Known to occur in the general area	No further consideration required
Eastern Ribbonsnake	*Thamnophis sauritus*	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
Common Five-lined Skink (Southern Shield Population)	*Plestiodon fasciatus*	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	*Pseudacris triseriata*	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).	Yes: adjacent lands only	Known to occur in the general area	No further consideration required
Invertebrates								
Monarch Butterfly	*Danaus plexippus*	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

APPENDIX C: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	Provincial S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Mottled Duskywing	*Erynnis martialis*	No Status	END	S2	The Mottled Duskywing is a medium-sized butterfly in the skipper family with a wingspan of 25-42 mm. It is dark grey with yellow-brown spots on its hind wings that give the species its mottled appearance and its name. The wings of freshly emerged adults have a purplish iridescence that fades with age. The mottled duskywing tends to live in dry habitats with sparse vegetation. These include open barrens, sandy patches among woodlands, and alvars. In Ontario, the mottled duskywing will only deposit their eggs on two closely-related plants: New Jersey tea and prairie redroot (1).	No	Known to occur in the general area	No further consideration required
West Virginia White	*Pieris virginiensis*	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	*Bombus terricola*	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: on-site and adjacent lands	Known to occur in the general area	No further consideration required
Mammals								
Tri-colored Bat	*Perimyotis subflavus*	END	END	S3?	The Tri-colored Bat is small, with pale brown with orange-red forearms, muzzle, and ears. It is named for the black, yellow, and brown hairs on its back. It is considered rare in this region of Ontario which is at the northernmost limit of the natural range. These bats prefer to nest in foliage, tree cavities and woodpecker holes, but are occasionally found in buildings; though this is not their preferred habitat. Winter hibernation takes place in caves, mines and deep crevices. Tri-colored Bats prefer an open forest habitat type in proximity to water (6).	Yes: on-site and adjacent lands	Known to occur in the general area	Consideration required under the ESA
Eastern Small-footed Myotis	*Myotis leibii*	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: on-site and adjacent lands	Known to occur in the general area	Consideration required under the ESA
Little Brown Myotis	*Myotis lucifugus*	END	END	S4	The Little Brown Myotis has glossy brown fur and a fleshy projection covering the entrance to its ears. This species roosts in trees and buildings, often selecting attics, abandoned buildings and barns for summer colonies where they can raise their young. Little Brown Bats hibernate from October/November to March/April, most often in caves or abandoned mines that are humid and remain above freezing (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Consideration required under the ESA
Northern Myotis	*Myotis septentrionalis*	END	END	S3	The Northern Myotis has dull yellow-brown fur with pale bellies and long, rounded ears. This species is found in boreal forests, roosting under loose bark and in the cavities of trees. These bats hibernate from October/November to March/April, most often in caves or abandoned mines (1).	No	Known to occur in the general area	No further consideration required

APPENDIX C: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	Provincial S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Algonquin Wolf	*Canis lycaon*	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	*Panax quinquefolius*	END	END	S2	American Ginseng is a perennial plant which grows up to 60 centimetres in height. The leaves typically have five leaflets arranged in a whorl at the end of the leaf stem. The root looks like a gnarly parsnip. The flowers are an inconspicuous green-white in colour, but the berries are bright red and arranged in a cluster. In Ontario, the American Ginseng typically grows in rich, moist, and mature deciduous woods dominated by Sugar Maple, White Ash, and American Basswood. It typically grows in deep, nutrient rich soil over limestone or marble bedrock (1).	No	Known to occur in the general area	No further consideration required
Black Ash	*Fraxinus nigra*	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
Butternut	*Juglans cinerea*	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).	No	Known to occur in the general area	No further consideration required
Pale-bellied Frost Lichen	*Physconia subpallida*	END	END	S3	The Pale-bellied Frost Lichen resembles a light dusting of frost on a dark tree trunk. This species is found throughout eastern North America, growing in wooded areas rich in hardwood species, such as White Ash, Hop Hornbeam (Ironwood), Black Walnut, and American Elm. It is also common to find this species growing on fenceposts or boulders within or near these wooded areas. In Ontario, this species has been found in the following counties: Frontenac, Haliburton, Hastings, Peterborough, Lanark and Renfrew (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
2. Government of Canada. (2021). Species at Risk Public Registry. Retrieved from https://species-registry.canada.ca/index-en.html#/species?ranges=5&sortBy=commonNameSort&sortDirection=asc&pageSize=10
3. Committee on the Status of Endangered Wildlife in Canada. (2008).
4. Environment Canada. (2018).
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6. University of Michigan Museum of Zoology. (2004).
7. Ontario Breeding Bird Atlas. (2020).
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Notes

Species receives protection under the Endangered Species Act (ESA) and considerdation is required.
Species recieves protection through the Signfiicant Wildlife Habitat designations under the Provincial Policy Statement.
Species protected through other conservation objectives such as the Federal Species at Risk Act.

Appendix D
Photographic Log

Photo 1 Shoreline, facing community FOC3-1, June 2023.

Photo 2 South of shoreline, community FOC3-1, June 2023.

Photo 3 Sandy area of shoreline, east portion of Site, June 2023.

Photo 4 Shoreline substrate, note large cobbled, June 2023.

Photo 5 Raspberry Cultural Thicket CUT1-5, June 2023.

Photo 6 Existing cottage on-site, June 2023.

Appendix E
Fish Species List

Appendix E - Fish Species List and Life History Information

Family	Common name	Scientific name	Source	S-Rank	SARA	ESA	Tolerance [1]	Thermal Regime [1]	Spawning Months [1]	Spawning Habitat Preferences [2]														
										Water depth (m)				Cover		Substrate								
										0-1	1-2	2-5	5+	Submergent Vegetation	Emergent vegetation	Bedrock	Boulder	Cobble	Rubble	Gravel	Sand	Silt	Clay	Hard-pan Clay
Cyprinidae	Bluntnose Minnow	*Pimephales notatus*	MNRF	S5			Intermediate	Warmwater	June-August	X	X	X	-	medium	medium	-	medium	medium	high	high	medium	-	-	-
Gasterosteidae	Brook Stickleback	*Culaea inconstans*	MNRF	S5			Intermediate	Coolwater	May-July	X	-	-	-	high	high	-	-	-	-	medium	high	high	-	-
Salmonidae	Brown Trout	*Salmo trutta*	MNRF	SNA			Intolerant	Coldwater	October-November	X	X	0	0	-	-	-	-	medium	high	high	low	-	-	-
Salmonidae	Cisco	*Coregonus artedi*	MNRF	S5			Intolerant	Coldwater	November-December	X	X	X	X	-	-	-	medium	high	high	high	high	medium	medium	medium
Cyprinidae	Finescale Dace	*Phoxinus neogaeus*	MNRF	S5			Intermediate	Coolwater	April-May	X	X	-	-	-	-	-	-	-	-	medium	high	high	-	-
Salmonidae	Lake Trout	*Salvelinus namaycush*	MNRF	S5			Intolerant	Coldwater	September-November	X	X	X	X	-	-	high	high	high	high	low	low	-	-	-
Catostomidae	Longnose Sucker	*Catostomus catostomus*	MNRF	S5			Intermediate	Coldwater	April-June	X	X	X	-	-	-	-	-	-	-	high	high	-	-	-
Centrarchidae	Pumpkinseed	*Lepomis gibbosus*	MNRF	S5			Intermediate	Warmwater	May-August	X	X	-	-	high	high	-	-	-	-	high	high	-	medium	-
Centrarchidae	Rock Bass	*Ambloplites rupestris*	MNRF	S5			Intermediate	Coolwater	May-June	X	X	-	-	low	low	-	-	high	high	high	medium	medium	medium	-
Centrarchidae	Smallmouth Bass	*Micropterus dolomieu*	MNRF	S5			Intermediate	Coolwater	May-June	X	X	-	-	low	low	medium	-	-	high	high	medium	-	-	-
Catostomidae	White Sucker	*Catostomus commersoni*	MNRF	S5			Tolerant	Coolwater	April-June	X	X	-	-	low	low	-	-	-	medium	high	medium	-	-	-

Note:

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

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

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

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