Environmental Impact Study: 3852 Ganaraska Road, Garden Hill, Ontario

April 14, 2022

Prepared for:
Mistral Land Development Inc.

Cambium Reference: 12728-001

CAMBIUM INC.

866.217.7900

cambium-inc.com

Peterborough | Barrie | Oshawa | Kingston | Calgary

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1.0 Introduction

Cambium Inc. (Cambium) was retained by Mistral Land Development Inc. to conduct an Environmental Impact Study (EIS) for the property located at 3852 Ganaraska Road, in the Municipality of Port Hope, Northumberland County, Ontario (Figure 1). Cambium understands that the Client is pursuing a residential subdivision on the Site with large rural lots serviced by on-site septic systems and drinking water wells. The proposed development requires applications for a Zoning By-law Amendment (ZBA) and a Draft Plan of Subdivision. Based on the proposed development, the entire property will be considered the Site for this report.

An Environmental Impact Study (EIS; the Study) is required to address potential negative impacts to natural heritage features identified during the preliminary development review process, as required by the Provincial Policy Statement, 2020 (PPS), the County of Northumberland Official Plan, and/or the Municipality of Port Hope Official Plan. The Site contains or is adjacent to (within 120 m of) the following natural heritage and/or hydrologic features: wetlands, watercourses/waterbodies, candidate significant woodlands, candidate significant wildlife habitat (SWH), and an Earth Science Area of Natural Scientific Interest (ANSI; Garden Hill Pitted Outwash). The Site is within Ecoregion 6E-7 of Ontario (Crins, Gray, Uhlig, & Wester, 2009). The proposed development is located in the Garden Hill Hamlet, a rural settlement area; a portion of the Site to the north of the hydro corridor is located outside of the Hamlet boundary (i.e., outside of the proposed development area).

The Site is located within the jurisdiction of the Ganaraska Region Conservation Authority (GRCA) and their regulated area overlaps portions of the Site. As the Site contains wetlands and watercourses, the Study will consider regulations on development as imposed by the local Conservation Authority's Regulation under the *Conservation Authorities Act, 1990*.

The Endangered Species Act, 2007 (ESA) protects endangered 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 landowner's responsibility to ensure that no harm to these species or their habitats occurs on

their property. This Study includes a habitat-based screening for species of conservation concern to determine if the Site has suitable habitat for any provincially or federally listed species at risk (SAR).

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

1.1 Terms of Reference

The Municipality of Port Hope and GRCA were contacted directly to confirm the Terms of Reference (TOR) for the Study. A record of Cambium's correspondence with the Municipality (Theodhora Merepeza, Planning Manager) and GRCA staff (Ken Thajer, Planning and Regulations Coordinator) is included in Appendix A.

1.2 Property Description

The southern portion of the Site is currently occupied by a mix of active agricultural lands (mixed crops), with a band of forested communities occupying the northern extent of the Site. A vacant residential dwelling and agricultural buildings (shed and barn) are present near the southern boundary of the Site. A hydro corridor runs east-west through the northern (forested) portion of the property. Three mapped watercourses are present in portions of the Site south of the hydro corridor. The southwest edge of the Site is bounded by a row of rural residential properties situated along Mill Street. Continuing further to the west is a large municipal water reservoir and the Garden Hill Conservation Area. Lands to the north of the Site are occupied by agricultural fields and rural properties with similar mixed land use (agricultural and forested). Lands to the east consist of a subdivision comprised of large rural residential lots.

1.3 Proposed Development and Concept Plan

The proposed development includes the creation of 44 lots ranging in size between approximately 0.31 ha and 0.73 ha. The proposed lots would be for single detached

residences with appropriate on-site servicing. Two stormwater blocks are proposed for the Site. A Concept Plan has been included as Appendix B.

2.0 Applicable Natural Heritage Policy and Regulation

2.1 Provincial Policy Statement, 2020

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

Section 2.2 of the PPS protects the quality and quantity of water, including the form 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.

The PPS applies to the lands within the settlement area of Garden Hill.

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, the policies that reference the NHS will apply outside settlement areas to the natural heritage systems identified in Official Plans that were approved and in effect as of July 1, 2017. The proposed development will be located within a designated settlement area, outside of municipal natural heritage systems; therefore, the "no negative impact" policy test of the PPS applies.

Table 1 Protected Features of the GPGGH

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

The more restrictive natural heritage policies of the GPGGH apply only to the portion of the Site outside of the settlement area, north of the hydro corridor; no development is proposed for this area.

2.3 Official Plan and Zoning By-Law

The County of Northumberland is in a transition period between the current Official Plan (2016) and the adoption of Official Plan Amendment No. 1 (OPA1), which includes the establishment of a Natural Heritage System (NHS) for the County, as required by the Province. In December

2021, County Council voted to adopt OPA1, and the amendment has been submitted to the Province for official approval. Lower-tier Municipal Official Plans will be updated upon formal approval of OPA1 by the Province; however, Cambium understands that the County intends to apply OPA1 from the date of approval by Council (i.e., December 15, 2021).

According to the current Northumberland County Official Plan (2016) land use schedule mapping, the portion of the property that is south of the hydro corridor is designated ‘Rural Settlement Area’. The lands north of the hydro corridor are designated ‘Environmental Protection Area (EPA)’. The new NHS applies to lands outside of settlement areas; however, a new designation – Natural Heritage Area (NHA), which replaces the EPA designation – has been identified. The NHA includes lands within settlement areas, and the forested portion of the Site has been identified as NHA within OPA1 (Schedule B-1) as a significant woodland.

Schedule C, of the Port Hope’s Official Plan designates most of the property as ‘Hamlet’, while the lands north of the hydro corridor are designated ‘General Agricultural’. ‘Natural Environment’ and ‘Floodplain’ designations are also present along the western boundary, associated with a watercourse, and a ‘Floodplain’ area is mapped traversing the southeastern corner of the property, associated with another watercourse. A 'Floodplain’ area is also mapped along the western boundary of the property (along Mill Street). Schedule C Sheet 23 identifies the Zoning for the Site, which includes ‘Development’ zoning over the proposed development area, with a small section of ‘Environmental Protection - Floodplain’ along the west property boundary. The ‘Development’ zoning indicates that these are lands that have been designated for development in the Municipality by the Official Plan but have yet to be granted full development permissions. A Zoning By-law Amendment to reflect the proposed development is required.

2.4 Conservation Authority Regulation

“Conservation Authorities are local watershed management agencies that deliver services and programs to protect and manage impacts on water and other natural resources in partnership with all levels of government, landowners and many other organizations” (Conservation Ontario, 2021). Conservation Authorities each have their own Ontario Regulation under the

Conservation Authorities Act, 1990. In general, they regulate development within and adjacent to river or stream valleys, Great Lakes and inland lakes shorelines, watercourses, hazardous lands (flood, erosion, unstable soils) and wetlands.

Ganaraska Region Conservation Authority (GRCA) regulates these features under Ontario Regulation 168/06: *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*.

2.5 Endangered Species Act, 2007

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

2.6 Species at Risk Act

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

2.7 Fisheries Act

Works within and adjacent to lakes, watercourses, and other bodies of water containing fish have the potential to impact fish and/or fish habitat. As a result of amendments to the federal

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

3.0 Technical Approach and Data Collection Methods

3.1 Background Information Review

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

- Natural Heritage Areas: Make-a-map (Ministry of Natural Resources and Forestry, 2018)
- Aquatic Species at Risk Maps - Ontario (Fisheries and Oceans Canada, 2018)
- Aquatic Resource Area Summary Data (Government of Ontario, 2015)
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature, 2018)
- Ontario Breeding Birds Atlas (OBBA) (2001-2005) (Bird Studies Canada, 2005)
- Ganaraska Region Conservation Authority (GRCA) regulated area mapping, Watershed Report Card (Ganaraska Region Conservation Authority, 2018), and Policies for the Implementation of Ontario Regulation 168/06 (GRCA, 2014)
- Northumberland County Official Plan and Official Plan Amendment No. 1 (OPA1)
- Municipality of Port Hope Official Plan and Zoning By-law
- Evaluation of ANSI Pitted Outwash Plain in Proposed Rural Subdivision Garden Hill, Ontario (GHD, December 2021)

Mapped natural heritage features present in the general area of the Site are shown on Figure 1.

3.1.1 Ministry Consultation

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

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

3.2 Field Investigations

Information gathered through the background information review was used to guide the development of the fieldwork program. The purpose of the site visits was to verify information acquired through existing documentation and to gather additional site-specific information. The following sections detail the methodologies that were applied.

3.2.1 Ecological Land Classification and Vegetation Inventory

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

3.2.2 Wetland Boundary Delineation

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

Any wetland areas observed on the Site were delineated following provincially approved methods outlined in the Ontario Wetland Evaluation System: Southern Manual, 3rd Ed. (MNRF, 2014). Fieldwork was carried out by provincially certified Cambium staff. The Site was visited during the early spring to document the extent of surface flooding during the spring freshet, when water levels are often at their highest elevations. This information is used to assist with the determination of wetland boundaries during the growing season.

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

3.2.3 Aquatic Habitat Assessment

A roaming visual survey was completed to identify and map all aquatic features on the Site, including waterbodies, watercourses (permanent and intermittent), seeps, springs, and overland drainage paths. Aerial photography and topographic base mapping were reviewed to identify additional aquatic features on adjacent lands that were not directly accessible. On-site features were characterized based on in-stream and riparian cover, channel

structure/morphology, substrates, hydrologic measurements, and indicators of instability, thermal regime, and permanence of flow, where applicable. Definitions and technical criteria referenced in the Ontario Stream Assessment Protocol (Ministry of Natural Resources and Forestry, 2017) were applied to wadeable streams. Fish community sampling was completed through the deployment of baited minnow traps for a period of 3.5 hours.

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

3.2.4 Breeding Bird Surveys

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

In addition, the barn on the Site was surveyed for Barn Swallow nests in March 2022. Confirmatory field investigations are planned for the breeding season in 2022 to determine the number of active nests, to guide compensation requirements under the ESA and its Regulations.

3.2.5 Amphibian Breeding Surveys

The presence of frog and toad breeding habitat was determined using auditory surveys following the Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (Bird Studies Canada, 2008). According to the protocol, three amphibian surveys should be conducted between April and July, at least 15 days apart, to span the breeding seasons of all species that may be present in an area. Air temperature is the primary factor in determining survey dates, as different species call when air and water temperatures reach certain levels; therefore, nighttime air temperature should be greater than 5°C for the first survey, greater than 10°C for the second survey and greater than 17°C for the third survey. Other weather conditions are also taken into consideration. Conditions are considered appropriate when wind speed is low (<19 km/h; Beaufort Wind Scale of 3 or lower) and there is light or no precipitation occurring (high humidity is ideal but heavier rain can impact ability to hear and differentiate calls). Sample points are established during the first survey and re-visited during following surveys. At each sample point, calls from all species are aurally surveyed for 3 minutes and noted to the greatest extent possible, on a 100 m semi-circular area in front of the sampling station using call intensity codes established by the protocol:

- Code 0: No calls heard
- Code 1: Calls can be counted individually (calls do not overlap)
- Code 2: Calls overlap, but numbers of individuals can be estimated
- Code 3: Calls overlap and are continuous (full chorus); therefore, a count estimate is unreliable

Recommended monitoring windows for the Site (located between the 43rd and 47th parallels) are 15-30 of April, 15-30 of May, and 15-30th of June.

3.2.6 Bat Maternity Roost Habitat Surveys

Bats present in Ontario typically require a snag or cavity tree for maternity roosting habitat. A snag or cavity tree is defined as a standing live or dead tree ≥25 cm diameter at breast height (DBH), with cracks, crevices, hollows, cavities and/or loose or naturally exfoliating bark

appropriate for bat roosting. High quality or significant wildlife habitat (SWH) is defined as woodlands with greater than 10 roost trees per hectare. To determine if suitable habitat for bats existed on/or adjacent to the Site, Cambium staff conducted a bat maternity roost survey using the methods detailed in the *Bat and Bat Habitats: Guidelines for Wind Power Projects* (Ontario Ministry of Natural Resources, 2011). The protocol requires that for sites with ≤10 ha of treed forest or swamp ELC community types, a minimum of 10 randomly selected plots are to be surveyed, with an additional plot added per hectare, to a maximum of 35 plots for the project area. At each plot, the number of snag/cavity trees ≥25 cm DBH within a 12.6 m radius (0.05 ha) is to be recorded. A calculation is then made to determine the snag density and if the number of cavity trees found meets the criteria for maternity surveys.

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.

The field investigations carried out on the Site are summarized in Table 2. Representative Site photos are included in Appendix C and survey stations/areas are shown on Figure 2.

Table 2 Summary of Field Investigations

Date	Time On Site	Weather	Observer	Activities
2021-04-13	1000-1630 2025-2120	15°C, Partly Cloudy	T. Jamieson	Ecological Land Classification Vegetation Inventory Wetland Boundary Delineation Soil Assessment (1) Bat Maternity Roost Survey Amphibian Breeding Survey
2021-05-12	1030-1330	30°C, Sunny	A. Kissel	Ecological Land Classification Vegetation Inventory
2021-05-18	2035-2125	25°C, Cloud Cover: 0%, Wind:0, Noise: 0	T. Jamieson	Amphibian Breeding Survey
2021-06-09	0630-0800	11°C, Cloud Cover: 50%; Wind: 1 Noise: 0	K. McKitterick	Breeding Bird Survey
2021-06-15	0645-0830	15°C, Cloud Cover: 100%; Wind: 1 Noise: 0	K. McKitterick	Breeding Bird Survey
2021-06-24	2120-2210	24°C, Cloud Cover: 10%, Wind:0, Noise: 0	T. Jamieson	Amphibian Breeding Survey
2021-07-15	0815-1215	21-26°C, Cloud Cover: 100%, Wind: 1, Noise: 1	D. Langlois M. Latter	Aquatic Habitat Assessment Fish Community Sampling
2021-08-31	0900-1200	30°C, Sunny	K. McKitterick	Ecological Land Classification Vegetation Inventory Wetland Boundary Delineation GRCA Site Meeting

Notes: Wind speed is reported as a Beaufort Wind Scale value (0 = 0-2 kph, 1 = 3-5 kph, 2 = 6-11 kph, 3= 12-19 kph, 4 = 20-30 kph, 5 = 31-39 kph, 6 = 40-50 kph). Noise is reported based on background noise levels: Index 0 – no appreciable effect, 1 – slightly affecting sampling, 2 – moderately affecting sampling, 3 – seriously affecting sampling, 4 – profoundly affecting sampling.

4.1 Landscape Position and Topography

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

The Site presents with a mixed topography. The Site generally slopes gradually downward, from north to south, towards Ganaraska Road. The topography in the southern half of the Site is relatively flat, from decades of agricultural activity. The northern portion of the Site (forested lands) present with a much more variable topography, dominated by upland ridges, vernal pools, depressional wetlands and watercourses. Detailed topographic mapping completed by IBW Surveyors is provided in Appendix D.

4.2 Vegetation Communities

The vegetation communities on the Site are summarized in Table 3 and are mapped on Figure 2. Initially, the vegetation communities were mapped based on orthoimage interpretation. Historical imagery dating to 1965 suggests that the lands to the north of the hydro corridor were cleared for agricultural use and have since regenerated. The forested and agricultural areas of the Site have remained generally consistent since 1965. A list of identified species and representative photos for each community are provided in Appendix E.

Table 3 Vegetation Communities

No.	ELC Code	Community Description	Community Type	S -Rank
1	N/A	Hedgerow	Terrestrial	N/A
2	MAM2-2	Reed Canary Grass Mineral Marsh	Wetland	S5

No.	ELC Code	Community Description	Community Type	S -Rank
3	CUM1-1	Mineral Cultural Meadow	Terrestrial	N/A
4	CVR	Constructed Residential	Terrestrial	N/A
5	CUW	Mineral Cultural Woodland	Terrestrial	N/A
6	OAGM1	Annual Row Corps (Predominately Soy)	Terrestrial	N/A
7	MAS2-1	Cattail Mineral Shallow Marsh	Wetland	S5
8	FOC4-1	Fresh - Moist White Cedar Coniferous Forest	Terrestrial	S5
9	FOM7-1	Moist – Fresh White Cedar – Sugar Maple Mixed Forest	Terrestrial	S5
10	FOD6-5	Fresh – Moist Sugar Maple – Hardwood Deciduous Forest	Terrestrial	S5
11	CUT	Cultural Thicket	Terrestrial	N/A
12	SWM1-1	White Cedar – Mixed Mineral Swamp	Wetland	S5

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

4.2.1 Significant Woodlands

Municipal Policies

The Town of Port Hope Official Plan (2017) identifies significant woodlands on Schedule B and states that all woodlands 4 hectares or greater in area and all woodlots of any size straddling or immediately adjacent to a watercourse will be considered significant. Schedule B of the Town's OP identifies the woodlands on the northern half of the property as significant. The subject woodlands are greater than 4 hectares and immediately adjacent/straddling watercourses.

The Northumberland County Official Plan (2016) defines significant woodland as:

> *an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history.* This definition is consistent with the guidance offered in the NHRM (Ministry of Natural Resources, 2010).

The woodland to the north of the hydro corridor is functionally separated from the woodland to the south (i.e., within proposed development area) by a gap of greater than 20 m. According the NHRM, woodlands are considered contiguous with other features if the gap is less than 20 m. As such, the wooded area to the north of the hydro corridor, which is outside of the settlement area and the proposed development area, will not be discussed further in this report; the woodland north of the hydro corridor is assumed to be significant, as shown on Figure 3.

The woodland to the south of the hydro corridor occupies 7.7 ha of the Site (see Figure 3), and when combined with contiguous features to the east the woodland occupies an area of approximately 9 ha. This woodland area is designated as NHA on Schedule B-1 of Northumberland County OPA1. The NHA designation includes significant woodlands that have been designated in accordance with municipal criteria. As stated in OPA1, NHAs within settlement areas are subject to the development and site alteration policies of the PPS, 2020. As such, an assessment of woodland significance based on the provincial Natural Heritage Reference Manual (NHRM) guidance is provided below.

NHRM-Based Evaluation

Significant woodlands are natural heritage features that are afforded protection under provincial policy in Ecoregions 6E and 7E. In the absence of local criteria for evaluating woodlands, the NHRM provides guidance on evaluating woodlands (Ministry of Natural Resources, 2010).

A summary of the significant woodlands assessment based on the criteria and standards listed in Table 7-2 of the NHRM is provided in Table 4. Approximately 36% of Northumberland County is comprised of woodland cover (North-South Environmental Inc., 2018); the column that relates to this percentage has been bolded for ease of reference to the appropriate criteria.

Table 4 NHRM Significant Woodlands Evaluation Criteria

Woodlands Significance Criteria	<5%	5-15%	16-30%	31-60%	>60%	Meets Criteria (Yes/No)
1. Woodland Size Criterion						
Woodland Size	2 ha	4 ha	20 ha	50 ha	n/a	N
2. Ecological Functions Criteria						
Woodland Interior	any	any	2 ha	8 ha	20 ha	N
Proximity to Other Woodlands and Other Habitats	0.5 ha	1 ha	4 ha	10 ha	50 ha	Y
Linkages	0.5 ha	1 ha	4 ha	10 ha	50 ha	N
Water Protection	0.5 ha	0.5 ha	2 ha	4 ha	4 ha	Y
Woodland Diversity (composition)	0.5 ha	1 ha	4 ha	10 ha	20 ha	N
3. Uncommon Characteristics Criteria						
Unique Species Composition	0.5 ha	1 ha	2 ha	4 ha	10 ha	N
Rare Vegetation Community	0.5 ha	1 ha	2 ha	4 ha	10 ha	N
Rare or Uncommon Plant Species	0.5 ha	1 ha	2 ha	4 ha	10 ha	N
Older Woodland Characteristics	0.5 ha	1 ha	2 ha	4 ha	10 ha	N
4. Economic and Social Functions Criteria						
High Economic or Social Value	n/a	n/a	n/a	n/a	n/a	N

Note: To be considered significant, woodlands must meet characteristics listed in the criterion and the corresponding area threshold
Shaded cells indicate that significance criteria have been met

The woodlands south of the hydro corridor represent the southern edge of a wooded area that extends to the north, east and west. Based on a review of orthoimagery, interior habitat in the woodland south of the hydro corridor does not meet the minimum significance criteria due to the gap in the canopy related to the hydro corridor. No community types or vegetation species

were observed on the Site; however, these aspects are unknown at the broader scale of the woodland feature across the landscape. Based on a review of orthoimagery, portions of the woodland south of the hydro corridor have been present since at least 1965, and in some areas the trees are reflective of a mature forest community in terms of size and structure. Since some areas of the woodland were not treed in 1965, the woodland feature does not meet the criteria for older woodland characteristics. The woodland feature is adjacent to watercourses and likely provides landscape level linkage opportunities for species migration. Therefore, the woodlands south of the hydro corridor meet the ecological functions criteria of proximity to other woodlands and habitats, and water protection, and are considered significant for the purposes of this Study.

4.3 Wetland Delineation

Provincial mapping shows an unevaluated wetland feature overlapping the northeast corner of the Site, as illustrated on Figure 1. Provincially certified Cambium staff visited these locations to verify the accuracy of the mapped wetland boundaries and refined the boundaries to reflect existing Site conditions. The field investigations confirmed this area to be comprised of terrestrial forest (Communities 9 and 10).

Wetland boundaries were delineated and agreed upon in the field with GRCA staff and surveyed with Cambium and GRCA staff present. Two distinct wetland communities were identified in the southern half of the property, as shown on Figure 2.

The southernmost wetland is located in the southeast corner of the Site, adjacent to the watercourse that crosses the property (Community 2). This community is dominated by Reed Canary Grass (*Phalaris arundinacea*) and Spotted Jewelweed (*Impatiens capensis*). Additional species present in this community include scattered trees such as American Elm (*Ulmus americana*), Trembling Aspen (*Populus tremuloides*), and Basswood (*Tilia americana*). Shrubs within the community included Hawthorn spp. (*Crataegus spp.*) and Red Osier Dogwood (*Cornus sericea*).

The other wetland is located along the east property boundary, adjacent to the residential development to the east and just south of the forested area (Community 7). This wetland is dominated by Narrow-Leaved Cattail (*Typha angustifolia*).

Additional wetlands, which are outside of the proposed development area, were documented in the hydro-corridor along the western property boundary (Community 7) and within the northernmost portion of forested lands (Community 12). Section 4.2 provides an overview of these features.

4.4 Surface Water and Drainage Features

The Site is situated in the Ganaraska River watershed. Provincial mapping shows three watercourses overlapping the Site, as illustrated on Figure 1. Representative photos are included in Appendix C.

A watercourse is illustrated on provincial mapping in the southern section of the Site, flowing from the agricultural pond in the southwest corner of the Site eastward, towards another mapped tributary to the east before crossing beneath Ganaraska Road. Field investigations determined that this drainage feature is no longer present. Based on verbal discussion with GRCA staff it is assumed that this hydrologic connection has been lost over time due to anthropogenic activity on the Site.

Due to the lack of hydrologic connectivity, the pond located in the southwest corner of the Site, as shown on Figure 2 (Appendix C, Photo 1), is not considered an online feature. This pond contained standing water during the early spring visits but was dry by mid-summer. Recent investigations into the hydrologic characteristics of this feature suggest that the bottom of the pond is a hard, level surface across the length of the pond, as determined though probing the pond depth through the ice in January 2022. It is speculated that the bottom of the pond may be lined with concrete and this feature was potentially used for manure storage from the barn historically.

Another watercourse (southeast watercourse) is mapped entering the property along the eastern boundary of the Site from within the adjacent residential development, conveying flows

southward, towards Ganaraska River. This feature was confirmed to be present during the field investigations, and water was present in the watercourse during all site visits (i.e., permanent flow). A 900 mm diameter corrugated steel pipe (CSP) conveys flows beneath Ganaraska Road. The CSP outlet was perched, with a perch height of 0.28 m and a jump height of 0.18 m at the time of the investigation, restricting fish passage. The CSP inlet was embedded. To alleviate potential concerns with flooding upstream of this crossing, the 900 mm CSP is proposed to upgraded to a 1400 mm culvert with the bottom 300 mm submerged. This modification would allow for fish passage to the upstream reach of this watercourse. Further discussion of inwater work is provided in Section 5.4.

The southeast watercourse was documented as an unconfined channel with a migrating flow path. In-channel substrates were dominated by fines and organic detritus. The vegetation in and along the watercourse was characterized as a Reed Canary Grass Graminoid Mineral Meadow Marsh community (MAM2-2; Community 2). Within the channel, vegetation consisted of Narrow-leaved Cattail (*Typha angustifolia*), and Reed Canary Grass (*Phalaris arundinacea*). Riparian vegetation included Red-osier Dogwood (*Cornus sericea*), Spotted Joe Pye Weed (*Eutrochium maculatum var. maculatum*), Spotted Jewelweed (*Impatiens capensis*), Reed Canary Grass (*Phalaris arundinacea),* and Narrow-leaved Cattail (*Typha angustifolia*). The riparian vegetation provides a moderate amount of overhead cover to the subject reach. Photos of the southeast watercourse are provided in Appendix C, Photos 2 to 4.

A watercourse is mapped overlapping the western boundary of the Site (west watercourse). This watercourse conveys flows toward the south, running parallel to Mill Street. The subject watercourse crosses Mill Street in two locations before traveling southward towards the reservoir located on adjacent lands that are associated with the Garden Hill Conservation Area. Flows are conveyed through a 900 mm diameter corrugated plastic pipe (CPP) at the northern Mill Street crossing. This culvert has been recently replaced, and the invert and outlet are embedded. At the southern crossing of Mill Street, flows are conveyed through a 1500 mm diameter CSP. Both the inlet and outlet of this culvert were embedded. Observations of this watercourse from Mill Street in January 2022 documented flowing water conditions during sub-freezing temperatures, following days of similar temperatures, indicating that this feature is

groundwater fed, with permanent flow. Photos of the west watercourse are provided in Appendix C, Photos 5 to 7. The west watercourse is greater than 30 m from the proposed development area.

Field investigations identified an additional watercourse (north watercourse) in the forested portion of the Site, that conveys flows from the northeast corner, southwesterly across the Site, converging with the west watercourse on the Site, as shown on Figure 2. Both the north and west watercourses are similar in morphology and riparian characteristics and exhibited a meandering low flow channel. In-channel substrates were dominated by fines and sparse gravel/cobble. At the time of the investigation, the wetted width of the north watercourse ranged from 0.90 m to 3.1 m, and the maximum water depth was 0.55 m. The average bankfull width was approximately 3.4 m. Erosion scars and undercut banks were documented on both banks of the features. In-stream cover was limited to sparse round rock, wood, and in-stream macrophytes. The forested communities surrounding these features (FOC4-1 and FOM7-1) provide a high degree of overhead cover. The flow regime of this watercourse is presumed to be permanent. The north watercourse is greater than 30 m from the proposed development area. Photos of the north watercourse are provided in Appendix C, Photos 8 to 10.

A network of previously unmapped drainage features was documented within the forested areas on the Site, which direct surface flow towards the north watercourse. Most of these drainage features were observed north of the hydro corridor, outside of the proposed development area. The approximate flow paths of these drainage features have been identified on Figure 2. The drainage features are likely ephemeral as they were documented to be dry during all field investigations. These features are not discussed further in this Study.

Numerous vernal pools and areas of standing water were observed within the forested portion of the Site during the spring field investigations, as shown on Figure 2. These pools are likely ephemeral, collecting spring surface drainage in topographical depressions. These areas were dominated by forest wetland indicator species including Balsam Fir (*Abies balsamea*), Eastern White Cedar (*Thuja occidentalis*), American Elm (*Ulmus americana*), and Red Maple (*Acer rubrum*), with Sensitive Fern (*Onoclea sensibilis*) being the dominant species in the understory; however, the vernal pool areas were characterized by bare soils, consistent with features of

this type. Most of the vernal pools were less than 500 m^2 in area and occupied significantly less than 20% of the ground surface. These distinctions indicate that the forest is characterized as a terrestrial community, and the vernal pools are inclusions within the forest feature.

4.5 Fish and Fish Habitat

The mapped watercourse running parallel to Mill Street is identified as supporting a coldwater thermal regime, according to NDMNRF records. These records are supported by Cambium's observations of flowing water conditions in January 2022. Appendix F includes a list of fish species known to occur in the watercourse, based on the background information review, and species-specific life history information.

The following observations were made during the fish community sampling event on July 15, 2021:

- North/west watercourse: 1 trap was deployed at the southern Mill Street culvert inlet. 1 Mottled Sculpin (*Cottus bairdii*) was captured (Appendix C, Photo 11).
- East watercourse: 1 trap was deployed at the culvert inlet at Ganaraska Road. No fish were captured.

During on-site discussions with GRCA, Cambium staff were informed that the Conservation Authority identifies the east watercourse as exhibiting a warmwater thermal regime, despite NDMNRF mapping the watercourse as coldwater. The perched culvert outlet and dense in-stream vegetation are likely seasonal barriers to upstream fish movement, through this reach of the watercourse.

4.6 Wildlife Survey Results

Incidental wildlife observations on the Site included Eastern Gartersnake (*Thamnophis sirtalis sirtalis),* Coyote *(Canis latrans*) and White-tailed Deer (*Odocoileus virginianus*). In addition, Raccoon (*Procyon lotor*) tracks and Red Fox (*Vulpes vulpes*) scat was observed on the Site.

4.6.1 Birds

OBBA breeding bird surveys were completed as a part of the Study, in accordance with the protocols detailed in 3.2.4. Bird species observed on or adjacent to the Site, a record of breeding evidence, and federal/provincial status and s-ranks are provided in Appendix G. A total of 15 species observed during the breeding bird surveys had probable or confirmed breeding evidence on the Site (shaded cells in Appendix G).

Of these 15 species, 3 species were documented that have the potential to result in development implications to the Site:

- Two Woodland Area-Sensitive Birds: Veery (*Catharus fuscescens;* documented at BBS2) and Black-throated Blue Warbler (*Setophaga caerulescens;* at BBS3)
- SAR: Barn Swallow (*Hirundo rustica*)

Incidental bird observations included: Barn Swallow (*Hirundo rustica*), Mallard (*Anas platyrhynchos*), Wild Turkey (*Meleagris gallopavo*), Wood Duck (*Aix sponsa*), Red-tailed Hawk (*Buteo jamaicensis*), Eastern King Bird (*Tyrannus tyrannus*), Eastern Phoebe (*Sayornis phoebe*), and Turkey Vulture (*Cathartes aura*). Due to the observation of Wood Duck (*Aix sponsa)* during the breeding season, the Site was investigated for potential Waterfowl Nesting Area SWH (see Section 4.7).

Breeding habitat for woodland area-sensitive birds can be designated as SWH, if 3 of the area-sensitive birds listed in the SWH Technical Guide for EcoRegion 6E are documented. Only 2 of the listed species were documented with breeding evidence on this Site; as such, area-sensitive bird SWH was confirmed to be absent from the Site.

Multiple Barn Swallow (*Hirundo rustica*) nests were observed within the barn on the southwest corner of the Site (Appendix C, Photo 12). Barn Swallows (*Hirundo rustica*) are a SAR species (Threatened); therefore, the barn structure is considered nesting habitat for this species and receives protections under the ESA. Details on species of conservation concern and their protected habitats are provided in Section 4.8.

None of the cultural meadow communities present on the Site were of sufficient size to support grassland bird nesting habitat. No grassland birds were documented on or adjacent to the Site during any of the field investigations in 2021.

4.6.2 Amphibians

Amphibian breeding surveys were completed during the appropriate temporal period, and a total of six species were identified on or adjacent to the Site, as shown in Table 5. None of the species observed are federally or provincially listed SAR.

Table 5 Summary of Amphibian Survey Results

Sample Point (MMP)	Survey Direction	Species By Observation Period (April, May, June)	Maximum Call Code (Intensity)	# of Individuals	Inside or Outside 100 m Sample Plot
1	N	Spring Peeper Spring Peeper	3 1	N/A 1	Outside Inside
		Spring Peeper Gray Treefrog	3 2	N/A 4	Outside Inside
		Green Frog Gray Treefrog	1 1	1 1	Inside Outside
2	S	Spring Peeper Spring Peeper Wood Frog	3 3 1	N/A N/A 1	Outside Inside Inside
		Spring Peeper Gray Treefrog	3 2	N/A 4	Inside Inside
		-	-	-	-
3	NW	Spring Peeper	3	N/A	Inside
		Spring Peeper Gray Treefrog	3 1	N/A 2	Inside Inside
		-	-	-	-
4	N	Spring Peeper	3	N/A	Outside
		American Toad	1	1	Inside
		-	-	-	-
5	S	Spring Peeper Wood Frog Northern Leopard Frog	3 1 1	N/A 4 3	Inside Inside Inside
		Spring Peeper	3	N/A	Inside

Sample Point (MMP)	Survey Direction	Species By Observation Period (April, May, June)	Maximum Call Code (Intensity)	# of Individuals	Inside or Outside 100 m Sample Plot
		Gray Treefrog	1	2	Inside
		Green Frog	1	6	Inside
		American Toad	1	2	Inside
		Green Frog	1	1	Inside
6	E	Spring Peeper	3	N/A	Inside & Outside
		Spring Peeper	3	N/A	Inside
		Gray Treefrog	2	2	Inside
7	N	Spring Peeper	3	N/A	Inside
		Wood Frog	1	3	Inside
		Spring Peeper	3	N/A	Inside
		Gray Treefrog	2	6	Inside
		American Toad	2	3	Inside

Notes: "- "indicates no calls heard
N/A indicates full chorus – individuals not identifiable

The species with the highest level of calls on the Site was Spring Peeper (Level 3; *Pseudacris crucifer*), followed by Gray Treefrog (Level 2; *Dryophytes versicolor*) and American Toad (Level 2; *Anaxyrus americanus*). The amphibian breeding station with the highest level of activity was MMP5, located adjacent to the stagnant agricultural pond in Community 3 (Appendix C, Photo 1). All six species documented on the Site were recorded at this station. Calls were documented at only two of the seven MMP stations (Stations and 5) during the last monitoring event on June 24, 2021, despite being conducted during the prime monitoring window. Given that amphibians were heard calling from all stations earlier in the season, this lack of activity in June is likely associated with the ephemeral nature (i.e., drying out early in the season) of the majority of the habitat areas on the Site.

Based on the amphibian breeding survey results, the various wetlands, vernal pools, watercourse, and ponds exhibited a limited to moderate amount of amphibian breeding activity that does not meet the criteria for designation as SWH.

4.6.3 Mammals

For the bat maternity roost survey, a total of 20 plots were surveyed in the forested area on the northern half of the Site; 10 plots were located in the forested area north of the hydro corridor and 10 plots south of the corridor. Individual trees that met the criteria were marked with a hand-held GPS unit. The plot area equates to 0.05 ha; thus, trees and areas are added and then multiplied to arrive at a density estimate of snag/cavity trees per hectare. The MNRF SWH Technical Guide for Ecoregion 6E (Ministry of Natural Resources, 2000) states that areas with a density of ≥10 snag/cavity trees per hectare are considered candidate SWH for maternity colony roosts.

A total of 10 bat maternity plot surveys were carried out in the forested area south of the hydro corridor; a total area of 0.5 ha was surveyed. Two candidate snag/cavity trees were documented, providing a density estimate of four snag/cavity trees per hectare. Thus, the woodland south of the hydro corridor does not meet the criteria to be considered candidate SWH for bat maternity colony roosting.

A total of 10 bat maternity plot surveys were carried out in the forested area north of the hydro corridor; a total area of 0.5 ha was surveyed. Seven candidate snag/cavity trees were documented, providing a density estimate of 14 snag/cavity trees per hectare. Thus, the forested area north of the hydro corridor meets the criteria to be considered candidate SWH for maternity colony roosts.

4.7 Significant Wildlife Habitat

Standard guidance documents produced by the MNRF were used as a guide to identify and confirm SWH on the Site (Ministry of Natural Resources, 2000). The Site falls within Ecoregion 6E; therefore, the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (Ministry of Natural Resources and Forestry, 2015) apply to the Site. Information gathered during the background review and field investigations were compared to SWH criteria, to identify potential SWH types present. A comprehensive SWH Screening table is provided in Appendix H.

Based on the information collected to date, the following Candidate SWH types were considered in detail for this Site. Details on species of conservation concern and their protected habitats are provided in Section 4.8. No other Candidate or Confirmed SWH types were identified on the Site.

Bat Maternity Colonies

Surveys were undertaken in 2021 during appropriate timing windows and following standard protocols, as detailed in Section 4.6.3. Based on the results of the screening and field investigations, the forested area north of the hydro corridor on the Site qualifies as Candidate SWH for Bat Maternity Roost; the forested area south of the hydro corridor does not qualify. Further discussion of this Candidate SWH is provided in Section 5.5.

Waterfowl Nesting Area

The forested area within 120 m of the cluster of vernal pools was investigated as Candidate SWH for Waterfowl Nesting Area, due to the observation of a pair of breeding Wood Ducks in Community 9 during the nesting season in 2021. In March 2022, when foliage was absent from the trees, Cambium staff revisited the woodland to screen the area for suitable nesting trees. Suitable nesting trees have the following characteristics:

- mature trees of greater than 40 cm DBH
- cavity opening located 10 m or greater above the ground
- cavity opening is a minimum of 10 cm

For habitat to be considered Candidate Waterfowl Nesting Area SWH, a minimum of 3 nesting pairs must be documented. Cambium searched the entire woodland, north and south of the hydro corridor, for Wood Duck nesting trees and documented a concentration of 11 potentially suitable cavity trees in Communities 9 and 10. Three additional individual trees were documented within the rest of the woodland. To determine whether this area meets the criteria to be confirmed SWH, field studies are proposed to occur through the spring of 2022 to survey the area for nesting waterfowl. These field studies will be focused on Communities 9 and 10,

where the pair of Wood Ducks were observed, and the concentration of suitable habitat was documented. Further discussion of this Candidate SWH is provided in Section 5.5.

Amphibian Breeding Habitat (Woodland and Wetland)

Amphibian breeding surveys were undertaken in 2021 during appropriate timing windows and following standard protocols, as detailed in Section 3.2.5. These studies confirmed that while amphibian breeding habitats are present on the Site, they do not meet the minimum SWH criteria of supporting two or more frog species with >20 individuals or Call Code 3 (full chorus). This SWH type is not discussed further in this Study.

Woodland Area-Sensitive Breeding Bird Habitat

Breeding bird surveys were completed in 2021 during appropriate timing windows and following standard protocols, as detailed in Section 3.2.4. Two area-sensitive bird species (Veery and Black-throated Blue Warbler) were recorded. Both species were recorded in proximity to the woodlands on the northern portion of the Site with probable breeding evidence based on males observed singing on two dates. However, based on the habitat measurements discussed in Section 4.2.1, woodlands on the Site do not provide enough habitat area to support area-sensitive birds (typically forests of >30 ha). Much larger expanses of woodland are present on the local landscape to the north and northwest, associated with the Ganaraska Forest Conservation Areas. It is likely that Veery and Black-throated Blue Warbler nest in larger woodlands on the landscape and use habitats on the Site for occasional foraging or other activities. Furthermore, the SWH criteria schedules for Ecoregion 6E detail that a minimum of three area-sensitive bird species is required to meet the minimum criteria for this SWH type. Based on the results of these studies, habitats on the Site do not meet the criteria for Woodland Area-Sensitive Breeding Bird SWH. This SWH type is not discussed further in this Study.

4.8 Species of Conservation Concern

A list of species of conservation concern, 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). The list has been augmented with direct field observations from this Study, as detailed in the previous sections. Cambium has employed a habitat-based screening, supplemented with targeted field surveys, when necessary, to identify suitable habitat for species located on or adjacent to the Site. A detailed habitat suitability analysis is provided in Appendix I and a discussion of the results is provided below.

No Critical Habitat for aquatic SAR listed under SARA was identified in watercourses or waterbodies on or adjacent to the Site.

4.8.1 Endangered and Threatened Species

Barn Swallows (*Hirundo rustica*) are listed as threatened both federally and provincially. They use a variety of open habitats for foraging, such as grassy fields, pastures, certain agricultural crops, shorelines, cottage areas, and wetlands. They prefer to nest within human made structures such as barns, bridges, and culverts. Nests of this species were documented in the barn on the Site during the field investigations (Appendix C, Photo 12). The surrounding agricultural lands and riparian corridors on the Site and surrounding landscape offer ample foraging habitat for this species. The Endangered Species Act, 2007 (ESA) includes protocols to allow for the removal and compensation of nesting habitat, if necessary. Next steps for addressing the Barn Swallow habitat documented on the Site are presented in Section 5.6. General avoidance and mitigation measures relating to the protection of birds are provided in Section 5.8.

The forested areas on the Site provide potential habitat for the following bat species: Tri-coloured Bat (*Perimyotis subflavus*), Eastern Small-footed Myotis (*Myotis leibii*), and Little Brown Myotis (*Myotis lucifugus*). Bat Maternity Roost surveys determined that the forested area north of the hydro corridor may provide suitable roosting habitat for these species, and qualify as Candidate SWH; however, woodlands south of the hydro corridor (i.e., in the proposed development area) do not qualify as SWH. The Site is also likely to provide foraging habitat for these bats. As such, general avoidance and mitigation measures relating to the protection of bats are provided in Section 5.8.

4.8.2 Special Concern Species

Snapping Turtle (*Chelydra serpentina*) may be present in the watercourses/ponds on and adjacent to the Site. Existing ground cover in open areas on the Site was dominated by agricultural fields and forested areas, which is not preferred nesting habitat for turtles. No indirect evidence of turtle activity (predated nests, eggshells, roadside nesting attempts) was observed on the Site; however, targeted surveys were not carried out. General avoidance and mitigation measures relating to the protection of turtles is provided in Section 5.8.

Eastern Milksnake (*Lampropeltis Triangulum*; federally listed as special concern) may be present on the Site. This species tends to use open habitats such as rocky outcrops, fields, and forest edges. The preferred prey of milksnakes are small rodents and ground nesting birds which are amply found in and surrounding agricultural outbuildings (Ministry of Natural Resources and Forestry, 2014). The milksnake is secretive and is not likely to be encountered during the day. General avoidance mitigation measures relating to the protection of snakes are provided in Section 5.8.

4.9 Significant Areas of Natural and Scientific Interest

Areas of Natural and Scientific Interest (ANSI) are natural heritage features identified by the NDMNRF. There are 2 types of ANSIs: Life Science and Earth Science. ANSIs represent important natural features that are not found in protected areas. The Natural Heritage Reference Manual provides the following definitions for ANSIs (Ministry of Natural Resources, 2010):

> *Life science ANSIs are significant representative segments of Ontario's biodiversity and natural landscapes, including specific types of forests, valleys, prairies, savannahs, alvars and wetlands, their native plants and animals, and their supporting environments. They contain relatively undisturbed vegetation and landforms, and their associated species and communities. Provincially significant life science ANSIs include the most significant and best examples of the natural heritage features in the province, and many will correspond to other significant features and areas such as wetlands, valleylands and woodlands. Earth science ANSIs are geological in nature, consist of some of the most significant*

representative examples of the bedrock, fossils and landforms in Ontario, and include examples of ongoing geological processes.

The Garden Hill Pitted Outwash (Earth Science) ANSI is located on the Site, adjacent lands, and broader landscape extending to the northeast and southwest from the Site. The subject ANSI is 1000 ha in size and is characterized by a sandy, pitted outwash plain that separates the Oak Ridges Moraine to the north from the drumlin capped remnant hills to the south. There are Candidate Earth Science and Life Science ANSIs within the local area of the Site; however, only the Candidate Earth Science ANSI is within the 120 m adjacent lands. This candidate area would be an extension of the existing, confirmed Garden Hill Pitted Outwash ANSI. A study was undertaken by GHD, dated December 13, 2021, to evaluate the Garden Hill Pitted Outwash Plain ANSI as it relates to the proposed development area south of the hydro corridor. The study concluded that the soils on the Site are recently deposited alluvial soil that overlies the bedded kame deposits, and that the pitted outwash plain does not overlap the proposed development area. The pitted outwash plain is present to the west of the woodlot between Mill Street and the Mill Pond. Based on this assessment, the Earth Science ANSI does not overlap the proposed development area, and no development related impacts to this feature are anticipated. Accordingly, the ANSI will not be addressed further in this report.

5.0 Impact Assessment and Mitigation Measures

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

- significant woodlands
- wetlands
- permanent streams
- fish habitat
- significant wildlife habitat
- habitat of Endangered and Threatened species

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

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

5.1 Significant Woodlands

The Town of Port Hope Official Plan (2017) identifies significant woodland on Schedule B and states that all woodlands 4 hectares or greater in area and all woodlots of any size straddling or immediately adjacent to a watercourse will be considered significant. Schedule B of the Town's OP identifies the woodlands on the northern half of the property as significant.

This woodland area is designated as NHA on Schedule B-1 of Northumberland County OPA1. The NHA designation includes significant woodlands that have been designated in accordance with municipal criteria. As stated in OPA1, NHAs within settlement areas are subject to the development and site alteration policies of the PPS, 2020. The woodland to the south of the hydro corridor is within the settlement area boundary. Development may be permitted within significant woodlands if the development will not result in a negative impact to the form or

function of the feature (i.e., no negative impact test can be met). To evaluate the function of a particular woodland, it is helpful to understand the criteria for which it was determined to be significant.

As noted in Table 4, the woodland south of the hydro corridor meets the following NHRM significance criteria:

- Ecological function, including: proximity to other woodlands/habitats, and water protection

To buffer the woodland from the proposed development, a 10 m setback from the dripline of the woodland is recommended. To mitigate development related impacts on the significant woodland, the 10 m setback should be enhanced to include a robust woodland edge vegetation community. The woodland setback should focus on integrating a diverse array of densely growing shrub species, such as Nannyberry, Black Raspberry, Common Blackberry, Witch Hazel, and Eastern White Cedar. These species will mature into a dense barrier between the woodland and the adjacent residential uses and provide high quality forage for wildlife. The 10 m setback, implemented as described, will result in a net ecological gain to the woodland over existing conditions.

The proposed development involves a portion of 13 lots within the woodland boundary and associated setback, as illustrated on the Concept Plan included in Appendix B. Lot lines are administrative in nature, and as a stand-alone item do not result in impacts to the form or function of a woodland feature. Cambium recommends that variable zoning, such as an environmental protection provision, be applied to the lots that overlap the woodland and associated VPZ.

5.1.1 Impact Assessment - Woodland Form

Of the 13 lots proposed to overlap the woodland boundary, 9 of the lots will require tree removals within the woodland to allow for the building envelope to be established. The development plan aims to maintain existing woodland cover to the extent possible, with these lots marketed as private wooded lots. The estimated area of tree removal is 1.5 ha total, with most of the tree removals occurring at the north end of the easterly road into the development,

which terminates in a cul-de-sac. The tree removal area is illustrated on the Concept Plan (Appendix B).

The layout of the lots results in an ad-hoc protection to the trees that will remain within the woodland. Due to the layout of the lots within the woodland boundary, and the general age of the woodland (i.e., mature large trees), removal of trees after the buildings and associated infrastructure have been installed will be difficult. Machinery access to the woodland will be limited and would generally require crossing a neighboring private lot. To this end, it is expected that the trees removed during the initial development process will be the extent of the trees removed from the feature. It is recognized that small scale tree removals may occur on private lands; however due to the limited access to the area by machinery to process fallen trees, the complexity and cost of the process is likely to deter most landowners from tree removals outside of the initial construction phase.

The form of the woodland will change due to the direct impact of tree removals. Best efforts should be made to maintain canopy closure to the extent possible. Selective tree removal and protection of remaining trees and root zones will limit impacts to the significant woodland. Small scale disturbance within the retained feature can be anticipated due to human presence on the residential lots created within the woodland. These impacts may include: invasive/non-native species introductions, habitat disturbance (physical alternations, noise, lighting), increase in wildlife/human interactions, and impacts to wildlife as a result of contact with domestic animals. Impacts can be minimized within the broader woodland feature by discouraging access to the retained woodland by residents. Best management practices, as outlined in Section 5.8, should be relayed to landowners upon purchase of the lots, to educate new residents on methods to safeguard the health of the woodland and associated wildlife.

To limit the extent of these identified potential impacts, a continuous permanent fence should be installed along the rear lot line of each of the lots fully overlapping the woodland area. The terrain in this area is uneven; therefore, the fence should be installed as close to this line as possible without causing alteration to the woodland and habitat features (i.e., large trees, boulders, pits/hollows may need to be avoided). This fence should be installed prior to the sale of the individual lots. The fence should be installed by hand to limit disturbance within the

woodland feature. The approximate location of the recommended permanent fence is illustrated on Figure 4.

The woodland meets the size threshold of 4 ha identified in the Port Hope Official Plan, with a total area of approximately 9 ha south of the hydro corridor. Removal of 1.5 ha of woodland will reduce the area of the woodland to approximately 7.5 ha, which is still substantially larger than the minimum area of 4 ha required for the feature to retain the municipal woodland significance designation. Further, with selective removal of trees and a focus toward maintaining canopy cover, the areal reduction in the size of the woodland is likely to be less than 1.5 ha.

The 1.5 ha of tree removals are proposed to be offset within the local area through woodland habitat enhancement and creation. To offset the direct removal of the trees, and the potential small-scale impacts referenced above, a compensation ratio of 2:1 (enhancement area: removal area) is recommended; therefore, a total area of 3 ha of woodland is proposed to be enhanced. The developer has access to a property located approximately 2.5 km west of the Site, which will be made available for woodland compensation, to remain over the long-term. The land will be secured through an appropriate planning mechanism in consultation with the planning authority to ensure that the woodland compensation feature will be maintained on the landscape.

A robust Compensation Plan will be developed at the Detailed Design stage, which will include the above referenced off-site compensation for woodland loss. Further details on the compensation strategy and recommendations for inclusion in the Compensation Plan are provided in Section 7.0.

5.1.2 Impact Assessment – Woodland Function

To evaluate potential impacts to the function of the woodland, the development has been assessed through the lens of the relevant provincial significance criteria, which are: proximity to other woodlands/habitats, and water protection. In the case of this proposal, both criteria are related to the presence of the watercourse within the woodland feature.

The proximity to other woodlands/habitats criteria was met due to the woodland providing cover and protection to the north watercourse which traversers the Site from the northeast toward the southwest; the watercourse and fish habitat receive benefit from the presence of the woodland. Further, wildlife prefer areas with mutual benefits – in this case the watercourse would provide a travel corridor, a drinking water source, and increased foraging opportunities as compared to a woodland without a watercourse.

The water protection criteria was met due to the presence of the watercourse within the feature, with the woodland offering protection to the form and function of the watercourse in terms of bank stability, stream morphology, water quality and fish habitat. The woodland supplies allochthonous inputs to the watercourse as an indirect benefit to downstream fish habitat.

The proposed woodland tree removals do not encroach into the 30 m watercourse setback – the nearest point of the proposed tree removal area is located approximately 55 m from the watercourse. No vegetation removals are proposed within 30 m of the watercourse. Lot lines also respect the 30 m watercourse setback; therefore, no private property will be created within 30 m of the watercourse. The 30 m setback will remain in the current vegetated state, allowing the functional processes associated with the woodland/watercourse/fish habitat interaction to continue in the pre-development condition.

Provided the mitigation measures outlined below are implemented, no impact to the function of the woodland, as it relates to the provincial woodland significance criteria, is anticipated.

5.1.3 Significant Woodland – Mitigation Measures

To protect the form and function of the woodland feature, Cambium recommends the following mitigation measures:

1. Light duty sediment fence should be installed along the 10 m woodland setback in accordance with Ontario Provincial Standards Document (OPSD) 219.110. No development or site alteration should occur within the 10 m setback, unless specific plans

for the site alteration activities have been proposed and approved in accordance with the remaining recommendations below.

2. A professional biologist/ecologist should be retained to assist with the establishment of the building envelope on all lots with tree removals proposed within the significant woodland dripline. The professional would identify the least sensitive area on each lot for the building envelope. The following features should be maintained to the extent possible:
    a. Trees providing increased habitat value for wildlife.
    b. Trees that provide significant canopy cover at heights that will not be affected by development on the ground (i.e., mature trees with high and broad canopies).
    c. Ground features that may provide increased wildlife value (i.e., rock piles, hollows, crevices in the ground).
    d. Vernal pools should be maintained to the extent possible.
3. Building envelopes should be situated within the nearest possible proximity to the road access point, unless there are substantial features as identified above that would make an alternate area more suitable for development.
4. Once the building envelope has been established, the biologist will work with the development team to flag the trees for removal. The removals will aim to minimize the number of stems removed and maintain canopy closure to the best extent possible.
5. A professional arborist should be retained to undertake the tree removals to prevent unintended damage to retained trees.
6. Trees near to the proposed development footprint and within the significant woodland dripline will be protected through a tree protection zone (TPZ). The TPZ will be physically marked with a barrier that will remain in place for the duration of construction. The barrier should be installed after the tree removals have occurred (to prevent damage to the barrier during felling), and before any site preparation activities take place. The barrier should be installed in accordance with OPSD 220.010 and will:

a. A minimum distance of 0.75 m shall be maintained between the trunk of all retained trees and the barrier.

b. Where 0.75 m cannot be maintained between the trunk and the barrier, trunk protection should be installed. Trunk protection can include 5 cm thick wooden planks fastened to the trunk around its circumference, parallel to the trunk. A foam pad should be installed between the trunk and the protection planks. The planks can be held in place with wire or webbing. No fasteners should be driven into the tree.

c. A distance of 1.5 m should be maintained between the barrier and the limit of grading.

The referenced OPSD are included in Appendix J.

5.2 Wetlands

Within settlement areas, wetlands are evaluated in accordance with the PPS, which restricts development within significant wetlands. The wetlands on the Site are not significant features; therefore, they are not protected by provincial policy, and an assessment of potential impacts to the form and function of these features is not required. As detailed in Section 4.7, none of the wetlands on the Site qualify as SWH for breeding amphibians. Rather, these wetlands are regulated by the GRCA in accordance with Ontario Regulation 168/06.

A wetland was identified in the southeast corner of the Site (Community 2), surrounding the southeast watercourse, which is a tributary to the Ganaraska River. A 15 m wetland setback has been applied to this feature, which was discussed and agreed upon with a GRCA biologist during a Site meeting on August 31, 2021. The 15 m wetland setback is illustrated on Figure 3.

The proposed development plan results in the removal of a small, isolated, wetland feature (Community 7; area of 0.18 ha) along the east property boundary, north of the proposed road access to Porter Crescent. This feature is not hydrologically connected to other wetlands or watercourses. Field observations of this feature document it to be dominated by Narrow-leaved Cattail. This species tends to colonize disturbed habitats, and typically presents as a

monoculture with limited value to wildlife. Amphibian breeding surveys were completed nearby, and this feature was documented to be used by Spring Peeper during the breeding season, consistent with observations made at all monitoring stations across the Site.

The Policies for the Implementation of Ontario Regulation 168/06 (GRCA, 2014), Section 4.2.6., states that GRCA may grant permission to alter a wetland, provided that the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development. In the case of this wetland, the developer is seeking a permit from GRCA to fill the wetland feature, with compensation proposed at an alternate location on the Site. The proposed compensation feature is shown on the Concept Plan in Appendix B, and results in a compensation ratio of 2:1 (wetland creation: wetland loss). The compensation feature is discussed further in Section 7.1.1.

5.2.1 Wetland – Mitigation Measures

To prevent sediment transport to the wetland surrounding the southeast watercourse during the development process, sediment fence should be installed in accordance with OPSD 219.110 in the following location, as illustrated on Figure 4:

1. Along the 15 m wetland/watercourse setback associated with the southeast tributary.
2. Sediment fencing should be inspected and maintained throughout the construction period, until the Site has been successfully revegetated. Damaged fencing should be repaired immediately.
3. A permit from GRCA should be obtained to fill the wetland feature north of the proposed Porter Crescent Road access, and confirmation of the appropriate wetland compensation feature (ratio of 2:1 wetland creation: wetland loss) prior to any disturbance or alteration of the feature.
4. A 5 m development setback should be applied to the wetland compensation feature to buffer this feature from adjacent land uses, which will increase the ecological function potential of this feature for wildlife.

Provided that these mitigation measures are implemented, the proposed development plan results in a positive ecological gain in wetland form and function for the Site.

5.3 Permanent Streams

There are two permanent watercourses that traverse the Site that may be affected by the proposed development. A tiered approach to setbacks from the watercourses has been taken, based on the existing condition of the surrounding lands. The identified development setbacks are illustrated on Figure 3.

5.3.1 Permanent Streams – Impact Assessment

The watercourse at the southeast corner of the Site is a tributary to the Ganaraska River. The southeast watercourse passes through an open area within an agricultural field, with a riparian area dominated by wetland species that varies in width from 10-25 m. GRCA confirmed that this watercourse is considered a warmwater feature. Warmwater features are less sensitive to development pressures, and a 15 m development setback is considered suitable to protect this feature type, in accordance with the NHRM and PPS. The 15 m development setback is supported by provincial policy (PPS 2.1.6) if the no negative impact test can be met. Considering that the watercourse is buffered by an existing wetland area, that the 15 m development setback is applied from the edge of the wetland, and that a robust planning plan will be prepared for the setback, no negative impacts to the watercourse are expected. Enhancement of the setback will result in a positive ecological gain for the wetland and watercourse in this location.

The north watercourse is located within the significant woodland and merges with the west watercourse along the west boundary of the Site, outletting to the Mill Pond on the opposite side of Mill Street from the Site. This watercourse is identified as a permanent coldwater (groundwater fed) feature and is therefore more sensitive to development pressures. A 30 m development setback from this watercourse has been established in accordance with the natural heritage policies of the NHRM and PPS.

5.3.2 Permanent Streams – Mitigation Measures

To prevent sediment transport to the watercourses during the development process, sediment fence should be installed in accordance with OPSD 219.110 in the following locations, as illustrated on Figure 4:

1. Around the complete perimeter of the development area, except where a more restrictive development setback has been identified (i.e., woodland dripline, watercourse/wetland setback), in which case the fence should be installed along the most restrictive identified setback. All fencing should tie together to prevent breaches in the barrier.
2. Along the 15 m wetland/watercourse setback associated with the southeast tributary.
3. Around the base of all stockpiled soil, offset by 5 m from the base of the stockpile. Stockpiles should be kept covered when idle for a period of 48 hours or more and should be covered in advance of heavy precipitation events (i.e., 10 mm in 24 hours).
4. Sediment fencing should be inspected and maintained throughout the construction period, until the Site has been successfully revegetated. Damaged fencing should be repaired immediately.

The identified setbacks should be maintained as existing, self-sustaining vegetation, where natural vegetation currently exists. In areas that are not currently vegetated with a naturally occurring assemblage of plants, the setback should be planted with a variety of woody and herbaceous species representative of the Site conditions and reflective of the local area. Recommendations for plantings to occur in the setback are included in Section 7.0. Provided that the identified setbacks are respected, and the recommendations supplied in Section 7.0 are adhered to, negative impacts to the watercourses on the Site are not expected.

5.4 Fish Habitat

The southeast watercourse is documented to be a warmwater feature, capable of supporting a tolerant fish community. Currently, fish access to the reach of the watercourse traversing the Site is restricted by a perched culvert at Ganaraska Road. The culvert outlet at the downstream end of the Site, where the watercourse passes beneath Ganaraska Road, was

observed to be perched. Based on the perch of the culvert, the reach of the watercourse upstream of Ganaraska Road is considered indirect fish habitat. This view is supported by the lack of fish captured during the fish community sampling event in July 2021. The development proposal includes an upgrade to the culvert at Ganaraska Road to an embedded 1400 mm culvert, which would allow fish passage to the upstream reach of this watercourse. Replacement of the culvert will result in a positive ecological gain to fish habitat. As referenced in Section 5.3, a development setback of 15 m from warmwater watercourses is supported by the PPS. In this case, the actual setback will be greater than 15 m due to the location of the wetland (with associated 15 m setback) lining the riparian area of the watercourse.

The north/west watercourse is a coldwater feature, capable of supporting a sensitive fish community, and as such a 30 m development setback from this feature is required, as discussed in 5.3. The receiving water body (Mill Pond) is not expected to contain sensitive fish species or significant habitat features; therefore, the potential for coldwater fish species to reach the watercourse is limited. One Mottled Sculpin, a species that typically inhabits flowing headwater habitats with rocky substrates (USGS, 2012), was identified in this watercourse. The southerly culvert that allows flows to pass beneath Mill Street to outlet at the Mill Pond was observed to be functioning and intact. The northerly culvert was observed to be perched and compressed, limiting fish passage beyond this point. To allow fish to access the watercourse within the significant woodland, increasing the ecological function of the system, the developer should consider replacing this culvert with a functional culvert that would allow for fish passage.

The proposed culvert replacement at Ganaraska Road will require inwater works; therefore, consultation with Fisheries and Oceans Canada (DFO) is required based on the proposed development plan. A Request for Review should be submitted to DFO and an authorization to complete the inwater works should be obtained, prior to any works taking place.

Provided that the mitigation measures presented in Section 5.3.2 are implemented, no impacts to fish or fish habitat are expected.

5.5 Significant Wildlife Habitat

Candidate Bat Maternity Colonies

Candidate SWH for Bat Maternity Colonies was identified within the woodland to the north of the hydro corridor. This area is outside of the proposed development area, and no physical changes to this feature are anticipated. Low levels of access to this area that may occur with an increase in development on adjacent lands will not affect the form or function of this habitat for bats.

Candidate Waterfowl Nesting Area

Candidate Waterfowl Nesting Area exists within the forested area of the Site to the south of the hydro corridor and is overlapped by the proposed development footprint. Field studies are ongoing through the spring of 2022 to confirm whether this area is being actively used by waterfowl, including Wood Duck, for nesting. An addendum to this Study will be provided upon the conclusion of the field studies (anticipated mid-July 2022).

No other Candidate or Confirmed SWH was identified on the Site; therefore, the proposed development is not expected to impact known SWH.

5.6 Habitat of Endangered and Threatened Species

5.6.1 Barn Swallow

As detailed in Section 4.8.1, Barn Swallow, a Threatened SAR, was observed on the Site, and nests were observed in the barn. As a result, the barn is protected habitat for this species under the ESA. The proposed development will require removal of the barn, which would result in a loss of nesting habitat for Barn Swallow; as such, the provisions of the ESA apply to the barn on the Site.

Barn Swallow is subject to an exemption under the ESA, as described in Section 23.5 of Ontario Regulation (O. Reg.) 830/21, which allows for the alteration of man-made structures that provide nesting habitat for this species. The barn cannot be removed until the

requirements of O. Reg. 830/21 are met; Cambium recommends that the barn be left in place until the additional information detailed in Section 7.2 is completed.

Provided the requirements of O. Reg. 830/21 are met, the barn can be removed, and the development would comply with provincial legislation.

5.7 General Site Development Recommendations

To ensure that the environment is adequately monitored for impact throughout the development process, Cambium recommends that the following documents be prepared at the Detailed Design stage. Several recommendations for inclusion within the referenced plans are provided.

Erosion and Sediment Control Plan (ESCP)

- The locations of the sediment fence referenced herein should be included.
- Monitoring should be completed by a qualified individual/firm on a routine basis, and within 24 hours of significant precipitation events.
- Stockpiles should be covered when not in use for periods of 48 hours or more and in advance of heavy precipitation events.
- Vegetation clearing should be staged to minimize the duration of soil exposure.

Stormwater Management Plan

- Runoff from the Site is expected to increase with the introduction of impermeable surfaces (i.e., building roofs, roadways, and walkways) and compacted surfaces with reduced infiltration capacity. Measures to increase infiltration of run-off from these surfaces should be encouraged and, where possible, included in the Site Plan for the development.
- Eavestrough downspouts should be directed to vegetated areas (such as lawn, or gardens) and not onto hardened surfaces, to encourage infiltration.

- Cambium anticipates that the Stormwater Management (SWM) Plan prepared for the Site will technical items related to potential stormwater-related impacts to water quality and quantity of the surrounding wetlands and watercourses.

Landscaping Plan

- The use of native, non-invasive species with wildlife value (i.e., fruit or nut bearing trees/shrubs) is encouraged.
- Specifications for determining success of plantings should be referenced.
- A natural assemblage and distribution of species is preferred.

Adaptive Monitoring Plan (AMP)

A pre- through post- construction monitoring program should be developed to monitor potential impacts from the development on the surrounding features, which would include:

- Amphibian monitoring in the wetland compensation feature and significant woodland.
- Vegetation establishment/success monitoring in setbacks, and wetland/woodland compensation features, in accordance with the detailed Compensation Plan.
- Surface water quality monitoring in the southeast tributary.
- Provisions for modifying or adding mitigation measures as necessary to address unforeseen impacts to local natural heritage systems.

5.8 Best Management Practices

Construction Staging

Vegetation clearing should occur in a staged manner, to limit the extent of exposed soils on the Site at any given time. Seeding of exposed soil should occur as soon as possible on a lot-by-lot basis. 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.

Equipment and materials should be stored in a designated area. Refueling of equipment should occur in a designated area, greater than 30 m from any water feature.

Vegetation Clearing

Vegetation clearing should occur in a staged manner, to limit the extent of exposed soils on the Site at any given time. Nesting birds 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 30 in the local area (as per Environment and Climate Change Canada Guidelines). Where feasible, construction should take place outside this period. If construction is planned to proceed during the breeding season, the area should be investigated for the presence of breeding birds and nests containing eggs and/or young, prior to Site alteration. Nests discovered should be left undisturbed until young have fledged or the nest is determined to be inactive.

All vegetation clearing within the woodland must occur outside of the combined active period for bats and breeding birds, which extends from April 15 to September 30, inclusive.

Wildlife Exclusion

Reptiles and amphibians are particularly vulnerable to construction-related impacts on sites adjacent to wetlands, watercourses, and waterbodies. As amphibians and snakes were documented on the Site, and the broader landscape may provide habitat for turtles, exclusion fencing should be installed around the perimeter of the Site prior to any Site alteration or construction. The wildlife exclusion 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 silt fence, staked at regular intervals, trenched-in at least 10-20 cm below ground, with an above ground height of at least 60 cm. A moveable barrier should be instated at the entry and exit points of the Site to allow the Site to be completely enclosed when inactive (i.e., after hours).

At the start of each workday the Site should be inspected for wildlife. If any individuals are encountered, they should be photographed and allowed time to move out of harm’s way. Species at Risk observations, including most species of snakes and turtles, should be reported to the Natural Heritage Information Centre.

Noise and Artificial Lighting

Noise is not expected to increase significantly post-development because the proposed residential use is consistent with the land use on the surrounding properties within the Hamlet of Garden Hill.

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

Domestic Animals

The continuous permanent fence that has been recommended as a component of the significant woodland mitigation measures will limit interactions between domestic animals and wild animals in the surrounding landscape. Signage should be posted at the stormwater blocks and wetland compensation area to encourage residents to properly dispose of pet waste, which can contain pathogens harmful to wild animals.

Invasive Species

Invasive species are becoming problematic throughout Ontario and can adversely impact our natural landscapes, including wetlands, woodlands, and watercourses. No vegetation dumping or yard waste disposal should occur within the forested areas of the Site to maintain the natural state and avoid the introduction or spread of non-native or invasive species. If fill or topsoil are required during development, the developer should ensure that fill and compost are provided by reputable sources that are conscious of the potential for the spread of invasive species via these media.

6.0 Policy Conformity

The proposed development includes the creation of 44 lots ranging in size between approximately 0.31 ha and 0.73 ha. The proposed lots would be for single detached residences with appropriate on-site servicing. Two stormwater blocks are proposed for the Site. Compensations in the form of habitat creation at a 2:1 ratio of creation: loss are recommended to address proposed alterations to a non-significant wetland and significant woodland feature. A detailed Compensation Plan will be prepared, which sill include:

- on-site wetland compensation through wetland creation
- off-site woodland compensation through existing woodland enhancement
- development setback enhancements for all identified setbacks

Based on the key natural heritage and/or hydrologic features identified on or adjacent to the Site, the findings of the field investigations detailed herein, and the proposed compensation strategies to offset impacts to wetlands and woodlands, the proposed development of the Site is in conformity with the PPS. Conformity with applicable natural heritage policy is summarized in Table 6.

The Natural Heritage Area (NHA) designation overlaps the significant woodland feature on the north part of the Site. As stated in OPA1, NHAs within settlement areas are subject to the development and site alteration policies of the PPS, 2020. Note that all key natural heritage and hydrologic feature types that are not relevant to the development proposal have been omitted from the conformity summary presented in Table 6.

Table 6 PPS Policy Conformity Summary

Key Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
Fish Habitat	Yes	Yes	Yes
	Explanation: Coldwater fish habitat associated with the permanent watercourse on the Site and adjacent lands will be maintained and protected through the recommended 30 m setback. Warmwater fish habitat associated with the permanent watercourse on the Site and adjacent lands will be maintained and protected through the recommended 15 m setback. Setbacks were established		

Key Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
	in accordance with the policies of the NHRM and PPS and through discussions with GRCA staff. No inwater work is proposed. If inwater work is proposed at a later date, a Request for Review should be submitted to DFO.		
Significant Wildlife Habitat (including habitat of special concern species)	Potentially	Potentially	Yes**
	Explanation: Candidate Bat Maternity Colony SWH was identified in the woodland north of the hydro corridor. No development is proposed in this area. Candidate Waterfowl Nesting Area SWH is present in the woodland to the south of the hydro corridor. **Targeted field studies are ongoing in the spring of 2022 to confirm whether this area meets the criteria to be Confirmed SWH. An Addendum to this Study will be supplied upon completion of the field studies. No other Candidate or Confirmed SWH was documented on the Site.		
Habitat of Threatened and Endangered Species	Yes	Potentially	Yes
	Explanation: Barn Swallow habitat is present within the barn on the Site. Prior to demolition of the barn, the conditions of the exemption under the ESA, as described in Section 23.5 of Ontario Regulation (O. Reg.) 242/08 must be met to compensate for this loss of nesting habitat.		
Areas of Natural and Scientific Significance	No	Yes	Yes
	Explanation: An Earth Science ANSI is mapped as overlapping the majority of the Site and across the landscape to the northeast and southwest, covering an area of 1000 ha. An investigation was completed by GHD in 2021, which found that the Pitted Outwash associated with this ANSI is absent from the development area.		
Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)	Yes	Yes	Yes
	Explanation: Significant woodlands are present on the Site, as represented by the forest feature south of the hydro corridor. A compensation strategy has been recommended to offset the loss of 1.5 ha of woodland, through the enhancement of 3.0 ha of woodland on at a location within 2.5 km of the Site. Recommendations have been made to maintain canopy cover, have tree removals guided by a biologist and conducted by an arborist, and to retain trees with wildlife value, to the extent possible.		
Streams (permanent/intermittent)	Yes	Yes	Yes
	Explanation: Two permanent streams are present on or adjacent to the proposed development area. These features will be protected through the establishment of suitable development setbacks (15 m for southeast watercourse, 30 m for north/west watercourse). The 15 m setback will be enhanced through a robust compensation strategy that will result in a net ecological gain to the watercourse and riparian area. The 30 m setback will be maintained as existing, self sustaining, vegetation.		

7.0 Opportunities for Restoration and Enhancement

7.1 Compensation Strategy

A robust Compensation Plan should be developed for the Site, which would include the following features. This plan will be prepared following confirmation of agreement in principle of the development approach.

7.1.1 Wetland Compensation Feature

The wetland compensation feature is proposed to occupy lands on the southeast quadrant of the Site, to the west of the southeast watercourse, as depicted on Figure 4. The wetland is proposed to be 0.35 ha in area, compensating for the loss of 0.18 ha of marginal wetland (approximate 2:1 ratio). The compensation feature should incorporate habitat complexity into the design, in the form of variable ground elevations, which will provide suitable growing conditions for a variety of wetland and water tolerant species. Native, non-invasive species should be used, and habitat groupings should be proposed that will mimic natural conditions.

A localized evaluation of groundwater recharge potential for the proposed feature location is ongoing, but based on historical imagery and ground conditions, the location of the feature is expected to receive groundwater contributions at shallow depths below grade. A consistent supply of groundwater increases the viability of the compensation feature.

7.1.2 Woodland Enhancement

The woodland enhancement is proposed to occur at a property approximately 2.5 km to the west of the Site. The compensation site is a former agricultural property with a sparse woodland/old orchard feature, and invasive species that require management. The compensation strategy will focus on improving and enhancing the quality of the wooded portion of this property, which will include removal/control of invasive species (European Buckthorn, non-native herbaceous species), planting of native trees and shrubs, and herbaceous vegetation removal and re-seeding. The enhancement will integrate habitat complexity, to mimic naturally occurring conditions.

There is a substantial slope present on the compensation site, with evidence of groundwater breakthrough at the toe of the slope. As a result, there is an opportunity to create a diverse woodland feature that will have substantial benefit to wildlife. The woodland enhancement is proposed to occupy an area of 3.0 ha and will result in a net ecological benefit to a degraded woodland feature in the watershed.

As with the wetland compensation, native and non-invasive species should be used, and habitat groupings should be proposed that will mimic natural conditions. The feature should have a variable edge to enhance diversity.

7.1.3 Vegetation Protection Zone Enhancements

Several setbacks have been established for the Site. The Compensation Plan should include a detailed planting and seeding plan for the setbacks that are associated with the former agricultural area of the Site. In summary, the setbacks that should be addressed in the Compensation Plan can be described as the following:

- 15 m existing wetland setback – Community 2 / southeast watercourse area
- 5 m wetland compensation setback – new / constructed wetland
- 10 m woodland setback

These areas should be enhanced with native, non-invasive, self-sustaining vegetation, which is reflective of the moisture regime of the planting location. In general, all setbacks should be densely vegetated with the express purpose of limiting human and domestic animal access to the natural areas of the Site.

The woodland setback should focus on integrating a diverse array of densely growing shrub species, such as Nannyberry, Black Raspberry, Common Blackberry, Witch Hazel, and Eastern White Cedar. These species will mature into a dense barrier between the woodland and the adjacent residential uses and provide high quality forage for wildlife.

Pollinator, seed-bearing, and fruit-bearing species should be used. Setbacks that occur within naturally vegetated areas (i.e., 30 m watercourse setback within the significant woodland) should remain in the current vegetated state.

7.2 Barn Swallow Habitat Compensation

Barn Swallow habitat is regulated under Part III of O. Reg. 830/21. An exemption from the prohibitions of the ESA is available for alterations to Barn Swallow habitat, provided that a number of conditions are met.

Conditions:

- Register the work and the affected species with the Ministry of Environment, Conservation, and Parks (MECP) before work begins by submitting a Notice of Activity.
- Minimize the adverse effects of the activity on the Barn Swallow.
- Prepare a Barn Swallow Management Plan.
- Create replacement habitat (nest cup) for any Barn Swallow nests that are removed or destroyed within the specified time period.
- Complete work that may impact the species outside of the nesting season (early May to end of August).
- Prepare and update a Record of Habitat Creation and Monitoring.
- Monitor and report on the habitat and use of the habitat by the target species as specified.

To ensure adequate nest replacement, the barn must be surveyed for nests prior to demolition. Compensation is required for the active nests.

The placement and design of the replacement structure will follow the guidance provided in the *Best Practices Technical Note: Creating Nesting Habitat for Barn Swallows* produced by the MNRF (Ministry of Natural Resources, 2016). As specified under O. Reg, 830/21, the replacement structure will be constructed within 1 km of the affected habitat and within 200 m of suitable foraging habitat. On subdivision sites, replacement structures are often placed

within development setback lands or within the stormwater management block. In the case of this Site, Cambium recommends placing the structure near the wetland compensation feature.

8.0 Summary of Mitigation, Compensation, and Best Practices

The following recommendations are provided for the proposed development:

General:

1. All required approvals and permits should be obtained prior to the commencement of any Site alteration / construction activities. Specifically, a permit from GRCA should be obtained to fill the wetland feature north of the proposed Porter Crescent Road access, and confirmation of the appropriate wetland compensation feature (ratio of 2:1 wetland creation: wetland loss) prior to any disturbance or alteration of the feature.
2. All development setbacks and recommendations identified on Figure 3 and Figure 4 should be included on all future Site Plans, and be afforded consideration in the additional studies recommended in Section 5.7. Specifically, the following features should be shown:
    a. 15 m wetland setback
    b. 5 m compensation wetland setback
    c. 10 m woodland dripline setback
    d. 30 m coldwater watercourse setback
    e. Tree protection zones
    f. Permanent fence
    g. Perimeter sediment fence
3. Variable zoning, such as an environmental protection provision, should be considered for the lots that overlap the woodland and associated VPZ.
4. A continuous permanent fence should be installed along the rear lot line of each of the lots overlapping the woodland area, prior to the sale of the lots. This fence should be installed by hand, to limit damage to the woodland feature.
5. Prior to any construction activities taking place, perimeter ESC fencing should be installed around the development area, along the limit of the identified development setbacks (as

identified in the detailed sections below for each feature type). Perimeter ESC fencing should meet the specifications for wildlife exclusion, to serve a dual purpose.

6. Vegetation clearing should occur in a staged manner, to limit the extent of exposed soils on the Site at any given time. Seeding of exposed soil should occur as soon as possible on a lot-by-lot basis.
7. 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.
8. Equipment and materials should be stored in a designated area within the development area, outside of all setbacks.
9. Refueling of equipment should occur in a designated area, greater than 30 m from any water feature.
10. No vegetation dumping or yard waste disposal should occur within the forested areas of the Site to maintain the natural state and avoid the introduction or spread of non-native or invasive species.
11. If fill or topsoil are required during development, the developer should ensure that fill and compost are provided by reputable sources that are conscious of the potential for the spread of invasive species via these media.

Significant Woodland:

12. Light duty sediment fence should be installed along the 10 m woodland setback in accordance with OPSD 219.110.
13. No development or site alteration should occur within the 10 m setback, unless specific plans for the site alteration activities have been proposed and approved in accordance with the remaining recommendations below.
14. A professional biologist/ecologist should be retained to assist with the establishment of the building envelope on all lots with tree removals proposed within the significant woodland dripline. The professional would identify the least sensitive area on each lot for the building envelope. The following features should be maintained to the extent possible:

h. Trees providing increased habitat value for wildlife.

i. Trees that provide significant canopy cover at heights that will not be affected by development on the ground (i.e., mature trees with high and broad canopies).

j. Ground features that may provide increased wildlife value (i.e., rock piles, hollows, crevices in the ground).

k. Vernal pools should be maintained to the extent possible.

15. Building envelopes should be situated within the nearest possible proximity to the road access point, unless there are substantial features as identified above that would make an alternate area more suitable for development.

16. Once the building envelope has been established, the biologist will work with the development team to flag the trees for removal. The removals will aim to minimize the number of stems removed and maintain canopy closure to the best extent possible.

17. A professional arborist should be retained to undertake the tree removals to prevent unintended damage to retained trees.

18. Trees near to the proposed development footprint and within the significant woodland dripline should be protected through a tree protection zone (TPZ). The TPZ will be physically marked with a barrier that will remain in place for the duration of construction. The barrier should be installed after the tree removals have occurred (to prevent damage to the barrier during felling), and before any site preparation activities take place. The barrier should be installed in accordance with OPSD 220.010 as per the following details:

    a. A minimum distance of 0.75 m shall be maintained between the trunk of all retained trees and the barrier.

    b. Where 0.75 m cannot be maintained between the trunk and the barrier, trunk protection should be installed. Trunk protection can include 5 cm thick wooden planks fastened to the trunk around its circumference, parallel to the trunk. A foam pad should be installed between the trunk and the protection planks. The planks can be held in place with wire or webbing. No fasteners should be driven into the tree.

c. A distance of 1.5 m should be maintained between the barrier and the limit of grading.

Wetland:

19. Sediment fence should be installed in accordance with OPSD 219.110 along the 15 m wetland/watercourse setback associated with the southeast tributary.

20. A 5 m development setback should be applied to the wetland compensation feature to buffer this feature from adjacent land uses, which will increase the ecological function potential of this feature for wildlife.

Permanent Streams:

21. To prevent sediment transport to the watercourses during the development process, sediment fence should be installed in accordance with OPSD 219.110 in the following locations:

    a. Around the complete perimeter of the development area, except where a development setback has been identified (i.e., woodland dripline, watercourse/wetland setback), in which case the fence should be installed along the most restrictive setback.

    b. Along the 15 m wetland/watercourse setback associated with the southeast tributary.

    c. Around the base of all stockpiled soil, offset by 5 m from the base of the stockpile. Stockpiles should be kept covered when idle for a period of 48 hours or more and should be covered in advance of heavy precipitation events (i.e., 10 mm in 24 hours).

Wildlife Protection:

22. The conditions of the Barn Swallow exemption under the ESA, as described in Section 23.5 of Ontario Regulation (O. Reg.) 242/08 must be met prior to the removal of the barn on the Site.

23. If the developer decides to initiate a culvert replacement on Mill St. that will allow fish passage, a Request for Review should be submitted to DFO prior to any works taking place.
24. All vegetation clearing within the woodland must occur outside of the combined active period for bats and breeding birds, which extends from April 15 to September 30, inclusive.
25. Vegetation clearing on portions of the Site outside of the woodland should occur outside the breeding bird season, which extends from April 15 to August 30 in the local area (as per Environment and Climate Change Canada Guidelines).
26. If construction is planned to proceed during the bird breeding season, the area should be investigated for the presence of breeding birds and nests containing eggs and/or young, by a qualified biologist prior to Site alteration. Nests discovered should be left undisturbed until young have fledged or the nest is determined to be inactive.
27. To minimize impacts to wildlife, it is recommended that outdoor lights be operated on timers, rather than by motion detection. Outdoor lighting associated with the development should be directed at the ground, rather than into the adjacent natural areas. Bulb wattage should be as low as practical while meeting the safety intent of the lighting.
28. ESC fencing can function as wildlife exclusion fencing and should be installed prior to the earlier of May 1 or commencement of Site preparation in order to keep turtles and snakes from entering the construction area. This fencing should be made of light-duty silt fence, staked at regular intervals, trenched-in at least 10-20 cm below ground, with an above ground height of at least 60 cm. A moveable barrier should be instated at the entry and exit points of the Site to allow the Site to be completely enclosed when inactive (i.e., after hours).
29. At the start of each workday the Site should be inspected for wildlife. If any individuals are encountered, they should be photographed and allowed time to move out of harm's way.

30. Signage should be posted at the stormwater blocks and wetland compensation area to encourage residents to properly dispose of pet waste, which can contain pathogens harmful to wild animals.
31. Species at Risk observations, including most species of snakes and turtles, should be reported to the Natural Heritage Information Centre.

Additional Studies – Detailed Design:

32. An Erosion and Sediment Control (ESC) Plan should be developed in conjunction with the SWM and outflow design to prevent sedimentation into the watercourse.
    a. The locations of the sediment fence referenced herein should be included.
    b. Monitoring should be completed by a qualified individual/firm on a routine basis, and within 24 hours of significant precipitation events (10 mm/24 hours).
    c. Stockpiles should be covered when not in use for periods of 48 hours or more and in advance of heavy precipitation events.
    d. Vegetation clearing should be staged to minimize the duration of soil exposure.
33. A Landscaping Plan, which should include the use of native and non-invasive species, with a layout that mimics natural conditions, to the extent possible.
34. A Stormwater Management Plan
35. A pre- through post- construction Adaptive Monitoring Plan (AMP) should be developed to monitor potential impacts from the development on the surrounding features, which would include:
    a. Amphibian monitoring in the wetland compensation feature and significant woodland.
    b. Vegetation establishment/success monitoring in setbacks, and wetland/woodland compensation features, in accordance with the detailed Compensation Plan.
    c. Surface water quality monitoring in the southeast tributary.

d. Provisions for modifying or adding mitigation measures as necessary to address unforeseen impacts to local natural heritage systems.

36. A Compensation Plan (detailed recommendations included in Section 7.1) to include the following features:

    a. Wetland compensation feature (on-site)

    b. Woodland enhancement (off-site)

    c. Vegetation protection zone enhancements (on-site)

37. Targeted surveys should be conducted in the spring of 2022 to confirm whether the woodland meets the criteria to be designated as Waterfowl Nesting Area SWH. A summary of the results of the field studies should be provided as an Addendum to this EIS.

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 adhered to. The information presented herein demonstrates that the proposed development can be carried out in a way that will not adversely impact natural heritage and hydrologic features and function identified on or adjacent to the subject Site. Where impacts to natural features will result from the proposed development, a robust compensation strategy has been recommended to provide an ecological net benefit to the Site and local watershed. Based on our evaluation, the proposed development complies with applicable provincial policy.

Respectfully submitted,

Cambium Inc.

Andrea Coppins, B.A. Hon., Dipl.
Senior Ecologist / Project Manager

Danielle Langlois, B.Sc., EPt
Ecological Technologist

Keegan McKitterick, B.Sc. Hon., Dipl.
Ecologist / Project Coordinator

Kristina Domsic, B.E.S.
Ecologist / Project Coordinator

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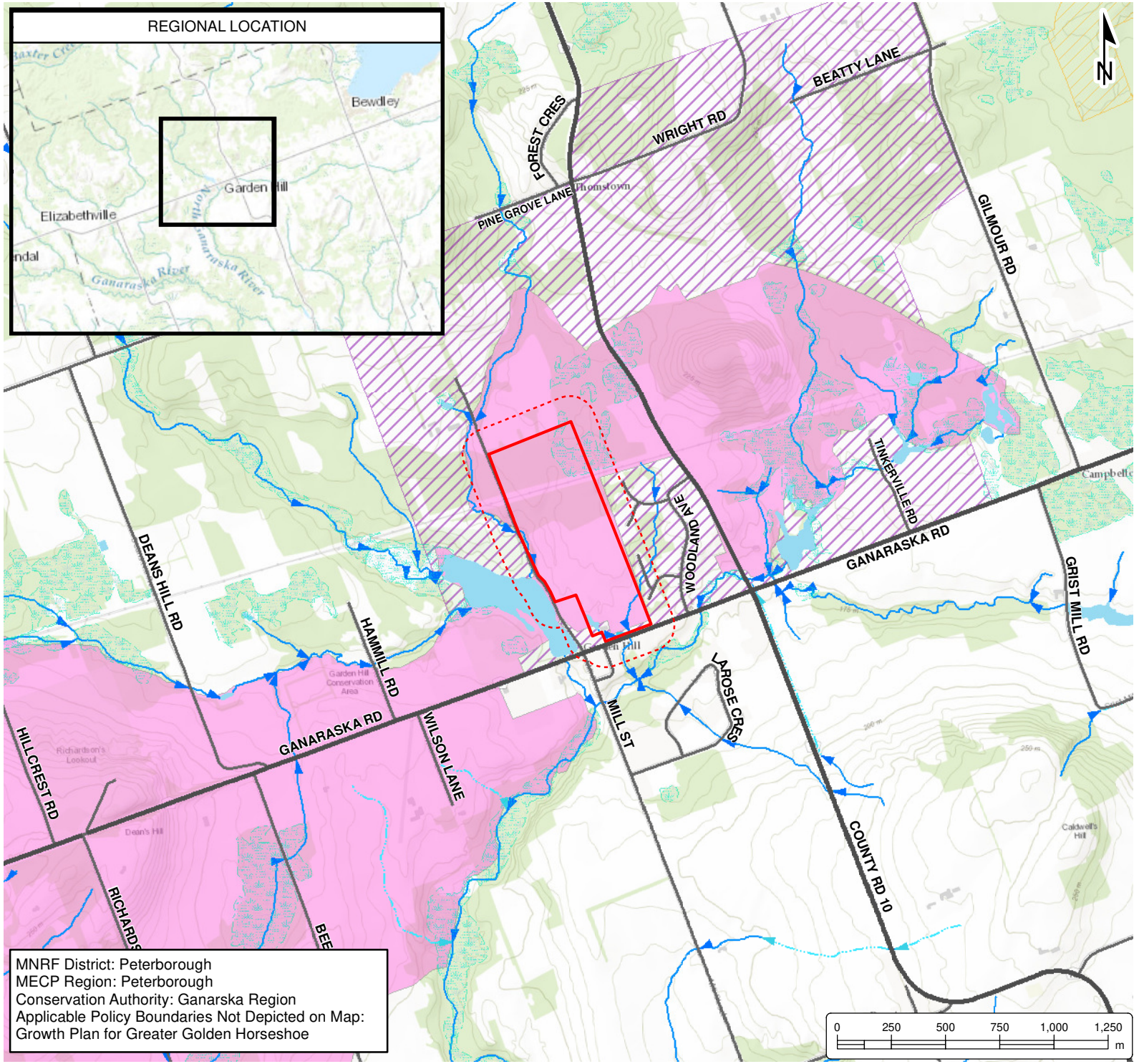
Glossary of Terms

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
HIS: 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
MNDMRF: 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

CHRISTOPHER DONEGAN
3852 Ganaraska Road
Port Hope, Ontario

LEGEND

- Site (36 ha)
- 120 m Adjacent Lands
- Major Road
- Minor Road
- Watercourse, Intermittent
- Watercourse, Permanent
- Unevaluated Wetlands
- Water Area
- Candidate ANSI, Earth Science
- ANSI, Earth Science
- Candidate ANSI, Life Science

Notes:
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194 Sophia Street
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Tel: (705) 742.7900 Fax: (705) 742.7907
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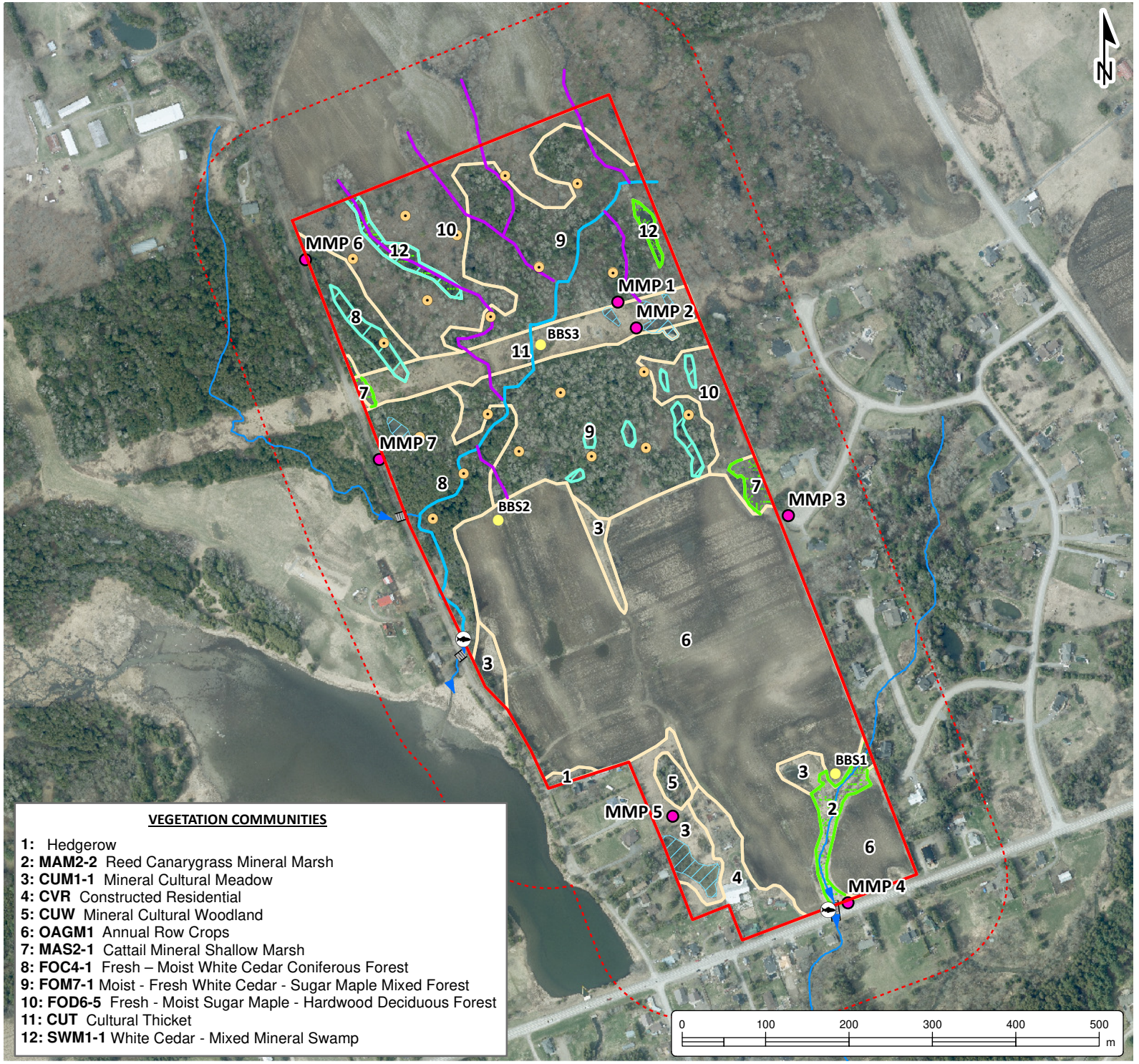
SITE LOCATION AND NATURAL HERITAGE POLICY AREAS

Project No.:	12728-001	Date:	September 202
		Rev.:	
Scale:	1:25,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	DJL	Checked by:	JPP
Figure:	1		

O:\GIS\MXDs\12700-12799\12728-001 Christopher Donegan - EIS - 3852 Ganaraska Rd, Port Hope\2021-09-14 FIG 1 - Site Location and Natural Heritage Policy Areas.mxd



VEGETATION COMMUNITIES

1: Hedgerow
2: MAM2-2 Reed Canarygrass Mineral Marsh
3: CUM1-1 Mineral Cultural Meadow
4: CVR Constructed Residential
5: CUW Mineral Cultural Woodland
6: OAGM1 Annual Row Crops
7: MAS2-1 Cattail Mineral Shallow Marsh
8: FOC4-1 Fresh – Moist White Cedar Coniferous Forest
9: FOM7-1 Moist - Fresh White Cedar - Sugar Maple Mixed Forest
10: FOD6-5 Fresh - Moist Sugar Maple - Hardwood Deciduous Forest
11: CUT Cultural Thicket
12: SWM1-1 White Cedar - Mixed Mineral Swamp

O:\GIS\MXDs\12700-12799\12728-001 Christopher Donegan - EIS - 3852 Ganaraska Rd, Port Hope\2021-09-14 FIG 2 - Natural Heritage Features and Survey Locations.mxd

ENVIRONMENTAL IMPACT STUDY

CHRISTOPHER DONEGAN
3852 Ganaraska Road
Port Hope, Ontario

LEGEND

- 120 m Adjacent Lands
- Site (37 ha)
- Vegetation Communities
- Wetland Boundary (Delineated with GRCA)
- Wetland
- Field Verified Watercourse
- Culvert
- Drainage Feature
- Pond
- Vernal Pool
- Watercourse, Permanent (Ontario Hydro Network Mapping)
- Minnow Trap
- Breeding Bird Survey Stations (BBS)
- Bat Maternity Roost Survey Plot Points
- Amphibian Breeding Survey Stations (MMP)

Notes:
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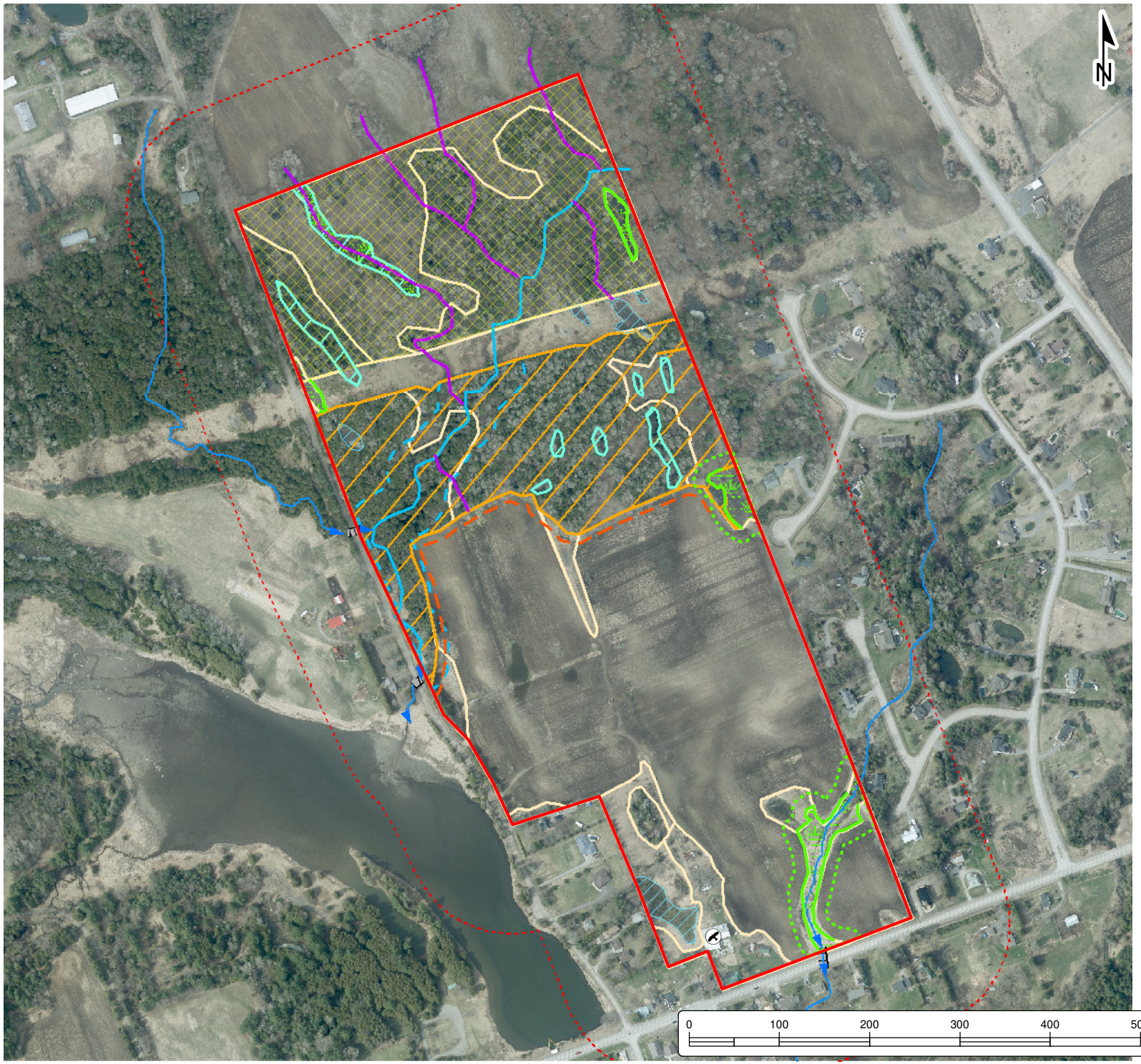
NATURAL HERITAGE FEATURES AND SURVEY LOCATIONS

Project No.: 12728-001		Date: September 2021 Rev.: March 2022	
Scale: 1:6,500		Projection: NAD 1983 UTM Zone 17N	
Created by: DJL	Checked by: JPP	Figure:	**2**



ENVIRONMENTAL IMPACT STUDY

CHRISTOPHER DONEGAN
3852 Ganaraska Road
Port Hope, Ontario

LEGEND

- 120 m Adjacent Lands
- Site (37 ha)
- 15 m Wetland Setback
- Wetland Boundary (Delineated with GRCA)
- Wetland
- Vegetation Communities
- 10 m Woodland Dripline Setback
- Significant Woodlands (within Settlement Area) (7.7 ha)
- Significant Woodlands (Outside Settlement Area)
- Field Verified Watercourse
- 30 m Watercourse Setback
- Culvert
- Drainage Feature
- Pond
- Vernal Pool
- Watercourse, Permanent (Ontario Hydro Network Mapping)
- Barn Swallow Nesting Habitat

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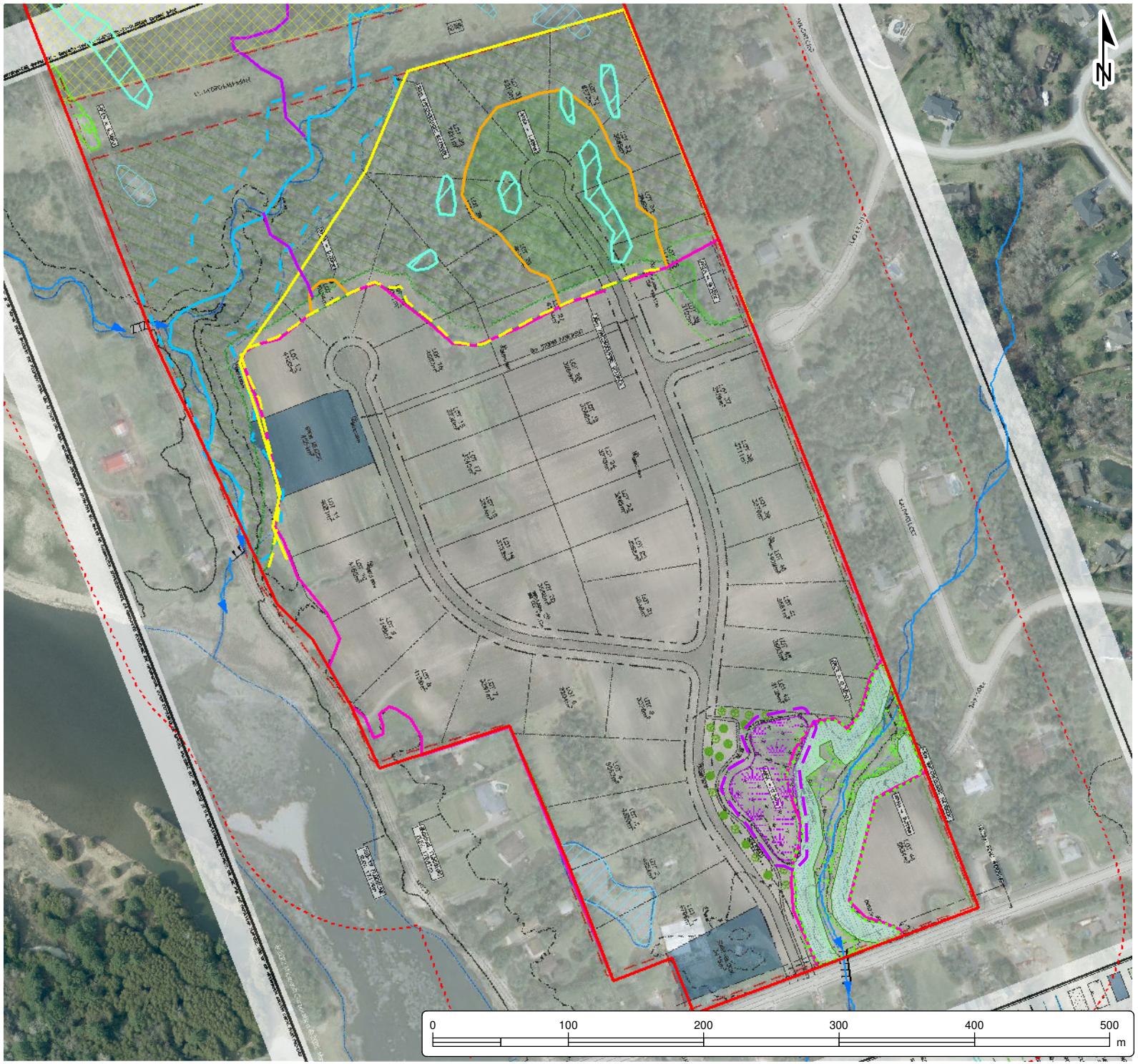
NATURAL HERITAGE CONSTRAINTS - DRAFT

Project No.: 12728-001		Date: September 2021	
Scale: 1:6,000		Projection: NAD 1983 UTM Zone 17N	
Created by: DJL	Checked by: JPP	Figure:	3

O:\GIS\MXDs\12700-12799\12728-001 Christopher Donegan - EIS - 3852 Ganaraska Rd, Port Hope\2021-09-14 FIG 3 - Natural Heritage Constraints - Draft.mxd



ENVIRONMENTAL IMPACT STUDY

CHRISTOPHER DONEGAN
3852 Ganaraska Road
Port Hope, Ontario

LEGEND

- 120 m Adjacent Lands
- Site (37 ha)
- 15 m Wetland Setback
- Wetland
- 5 m Compensation Wetland Setback
- Wetland Compensation Area (0.36 ha)
- Enhancement Area
- 10 m Woodland Dripline Setback
- Significant Woodlands (Outside Settlement Area)
- Field Verified Watercourse
- 30 m Watercourse Setback (Remain in existing condition)
- Culvert
- Drainage Feature
- Pond
- Vernal Pool
- Watercourse, Permanent (Ontario Hydro Network Mapping)
- Permanent Fence
- Tree Protection Zone (TPZ) (location approximate)
- Sediment Fence (OPSD220.010)

Notes:
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194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
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MITGIATION MEASURES AND RECOMMENDATIONS

Project No.:	12728-001	Date:	March 2022
		Rev.:	
Scale:	1:4,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	DJL	Checked by:	AZC
Figure:	4		

O:\GIS\MXDs\12700-12799\12728-001 Christopher Donegan - EIS - 3852 Ganaraska Rd, Port Hope\2022-03-21 FIG 4 - Mitigation Measures and Recommendations.mxd

Appendix A
Correspondence

Danielle Langlois

From: Jeremy Prahl
Sent: August 10, 2021 4:24 PM
To: kthajer@grca.on.ca; lchampagne@grca.on.ca
Cc: Jeff Mycyk; Christopher Donegan; Jason Armstrong; Kent Randall; Cambium File
Subject: FW: Proposed Terms of Reference - EIS @ 3852 Ganaraska Road, Port Hope (12728-001)
Attachments: 2021-03-16 MAP MNRF Natural Features.pdf

Importance: High

Good afternoon Ken,

Again, thanks for the discussion this afternoon. Please see below the second inquiry/request I was referring to. The subject property is located at 3852 Ganaraska Road in Port Hope (see attached map). We kindly request GRCA feedback on our proposed Terms of Reference. We would also like to schedule a site meeting for this site, to review and delineate regulated features.

Note that we haven't received any input from anyone at the Town as of yet.

Thanks for your urgent attention to this matter.

Jeremy

Jeremy Prahl, B.Sc., EP, CAN-CISEC
Project Manager / Senior Biologist

Cambium Inc. - Barrie
p: 705.719.0700 x 412 | **c:** 249.359.0689 | **toll:** 866.217.7900 | **w:** cambium-inc.com

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From: Jeremy Prahl
Sent: June 8, 2021 3:05 PM
To: 'kthajer@grca.on.ca' <kthajer@grca.on.ca>; 'tmerepeza@porthope.ca.' <tmerepeza@porthope.ca.>
Cc: Cambium File <file@cambium-inc.com>
Subject: Proposed Terms of Reference - EIS @ 3852 Ganaraska Road, Port Hope (12728-001)

Good afternoon,

Cambium has been retained by Mr. Chris Donegan to complete an Environmental Impact Study (EIS) at 3852 Ganaraska Road, in the Municipality of Port Hope, Northumberland County, Ontario (the Site). We understand that the Client is considering a residential subdivision on the Site. Based on our preliminary review, the Site contains mapped wetlands, watercourses, and woodlands.

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

- Consult with the Municipality of Port Hope and GRCA staff, to determine their interests/concerns regarding the proposed works and study requirements.
- Compile and review applicable background information and environmental mapping pertaining to the Site.
- Conduct a survey for bat maternity roost trees, according to the MNRF Peterborough District Protocol, to assess the Site for SAR bat habitat in treed areas.
- Conduct three (3) breeding bird surveys on the Site, using Components of the Ontario Breeding Bird Atlas Guide for Participants (OBBA, 2001) and the Forest Bird Monitoring Program (Canadian Wildlife Service, 2005) as appropriate, based on site conditions. This includes surveying any existing structures for the presence of Barn Swallow (*Hirundo rustica*) nests/activity, and grassy areas for SAR grassland birds.
- Conduct three (3) amphibian breeding surveys, following the Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (Bird Studies Canada, 2008), to document frog and toad breeding activity on and adjacent to the Site.
- Conduct an aquatic habitat assessment, to identify and characterize features of significance (e.g., wetlands, seeps, springs, etc.) on the Site.
- Conduct three (3) vascular plants surveys on the Site, to provide a three-season inventory.
- Classify existing vegetation communities on the Site, according to the Ecological Land Classification System for Southern Ontario (Lee et. al., 1998), and evaluate them for sensitivity, rarity, and botanical quality.
- Delineate any wetland boundaries following the Ontario Wetland Evaluation System (OWES) for Southern Ontario (Ministry of Natural Resources, 2013); regulated features to be staked and flagged for future surveying.
- Undertake a Species at Risk (SAR) screening to asses for potential SAR habitat and evaluate compliance with the provincial Endangered Species Act, 2007. This includes reviewing species occurrence records and range maps, and assessing potential occupancy based on the habitat present on and adjacent to the subject property. This preliminary screening will be carried out according to MECP Guide to Preliminary Screening for Species at Risk (May 2019). We acknowledge that additional surveys may be required if habitat to support certain endangered or threatened species is identified.
- Record observations of wildlife occurrences and assess wildlife habitat function, including significant wildlife habitat on the Site. Any evidence of wildlife breeding, forage, shelter or nesting sites, and/or travel corridors will be noted.
- Identify, assess, and include detailed descriptions of the natural features and functions identified on the Site and adjacent lands.
- Map key natural heritage and hydrologic features, vegetation communities, and other environmental features (watercourses, wetlands, areas of groundwater discharge, wildlife habitat, etc.) and proposed development on current, high quality aerial imagery. Any environmental feature/area mapping generated through the EIS work will be made available in GIS shapefile format.
- Provide an assessment of the potential impacts of the proposed development on natural features and their related ecological and hydrologic functions.
- Demonstrate conformity with the applicable regulation, policies, and plans including: County of Northumberland Official Plan, Municipality of Port Hope Official Plan, the Provincial Policy Statement, 2020, Conservation Authorities Act, and O.Reg. 168/06.
- Develop an appropriate avoidance, mitigation, and/or restoration strategy, to address the potential impacts and opportunities identified.
- Complete one (1) final report with supporting figures for circulation to the Municipality and GRCA.

Kindly advise if you have any comments or suggested revisions to the above.

Thanks,

Danielle Langlois

From: Jeremy Prahl
Sent: August 24, 2021 5:21 PM
To: Jeff Mycyk; Christopher Donegan
Cc: Chris Bonisteel; Cody Oram; Jason Armstrong; Kent Randall; Cambium File
Subject: FW: 3852 Ganaraska Road TOR (12728-001)

Hi all,

FYI, please see below GRCA's formal response to our EIS ToR review inquiry for the Garden Hill site. The additional requirements are all consistent with our original fieldwork and/or reporting standards. Also, please note that the GRCA natural heritage site meeting scheduled for August 31st is covered by the Draft Plan of Subdivision review fee.

Thanks,
Jeremy

Jeremy Prahl, B.Sc., EP, CAN-CISEC
Project Manager / Senior Biologist

Cambium Inc. - Barrie
p: 705.719.0700 x 412 | **c:** 249.359.0689 | **toll:** 866.217.7900 | **w:** cambium-inc.com

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From: Ken Thajer <kthajer@grca.on.ca>
Sent: August 20, 2021 11:33 AM
To: Jeremy Prahl <Jeremy.Prahl@cambium-inc.com>
Subject: 3852 Ganaraska Road TOR

Re: Terms of Reference
3852 Ganaraska Road
Municipality of Port Hope

The GRCA has reviewed the Terms of Reference for the Plan of Subdivision at 3852 Ganaraska Road by Cambium June 8, 2021 and have the following comments:

1. The GRCA is satisfied with the proposed spring/summer vegetation field survey; however included the additional requirements:

    a. Include soil samples conducted for ELC and OWES. (This information will help to determine the soil permeability).
2. If candidate Significant Wildlife Habitat or Species at Risk habitat is determined through the screening process, the GRCA and the municipality shall be contacted in order to determine the scope for further studies, if necessary.
3. A section regarding the proposed development is required in the EIS. This section will briefly describe the development and will include a drawing illustrating the building envelop, including:
    a. The location of the buildings or structures
    b. New lot lines
    c. Driveways and parking lots
    d. Stormwater management areas
    e. Drainage areas
    f. Utility corridors, maintenance routes, public trails, etc.
    g. Existing infrastructure, and
    h. Natural hazards and natural heritage features, and their associated setbacks
4. Potential impacts assessment should include impacts to:
    a. Physical resources; i.e. topography, floodplain, surface drainage, etc.
    b. Hydrology; i.e. how will the developemt impact runoff?
    c. Ecosystems

Let me know if you have any questions.

Regards,

Ken Thajer, MCIP, RPP
Planning and Regulations Coordinator

Celebrating 75 Years of Conservation 1946 - 2021
Ganaraska CONSERVATION

2216 County Road 28
Port Hope, ON L1A 3V8
905.885.8173 x. 245 / 905.885.9824 fax

kthajer@grca.on.ca / www.grca.on.ca

"Clean Water Healthy Lands for Healthy Communities"

Please note that due to COVID-19 concerns, the GRCA administration office is closed to the public. Please contact us by email or phone.

Danielle Langlois

From: Jeremy Prahl
Sent: September 2, 2021 12:16 PM
To: Jeff Mycyk; chruan@hotmail.com
Cc: Cody Oram; Kent Randall; Cambium File
Subject: FW: EIS Terms of Reference - 3852 Ganaraska Road, Port Hope (12728-001)

FYI

Jeremy Prahl, B.Sc., EP, CAN-CISEC
Project Manager / Senior Biologist

Cambium Inc. - Barrie
p: 705.719.0700 x 412 | **c:** 249.359.0689 | **toll:** 866.217.7900 | **w:** cambium-inc.com

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From: Theodhora Merepeza <TMerepeza@porthope.ca>
Sent: September 2, 2021 12:13 PM
To: Jeremy Prahl <Jeremy.Prahl@cambium-inc.com>
Cc: Mandy Kort <MKort@porthope.ca>
Subject: RE: EIS Terms of Reference - 3852 Ganaraska Road, Port Hope (12728-001)

Hi Jeremy,

Thank you for the e-mail and the accompanying info re TOR for the EIS.

The Woodland Subdivision was registered in May 1989 so the technical reports must have been done prior to that. Unfortunately this file is way before my time and hard copy of the planning file is archived on an offsite location. I did search our computer and did not find anything…

Thanks,

Theo

From: Jeremy Prahl <Jeremy.Prahl@cambium-inc.com>
Sent: August 27, 2021 8:23 AM
To: Theodhora Merepeza <TMerepeza@porthope.ca>
Cc: Cambium File <file@cambium-inc.com>; Kent Randall <KRandall@ecovueconsulting.com>
Subject: EIS Terms of Reference - 3852 Ganaraska Road, Port Hope (12728-001)

Good morning Theodhora,

Further to our voicemail exchanges over the past few weeks, please see attached correspondence between Cambium and GRCA staff regarding the proposed Terms of Reference for the Environmental Impact Study we are carrying out at 3852 Ganaraska Road. Kindly advise if you have any further input.

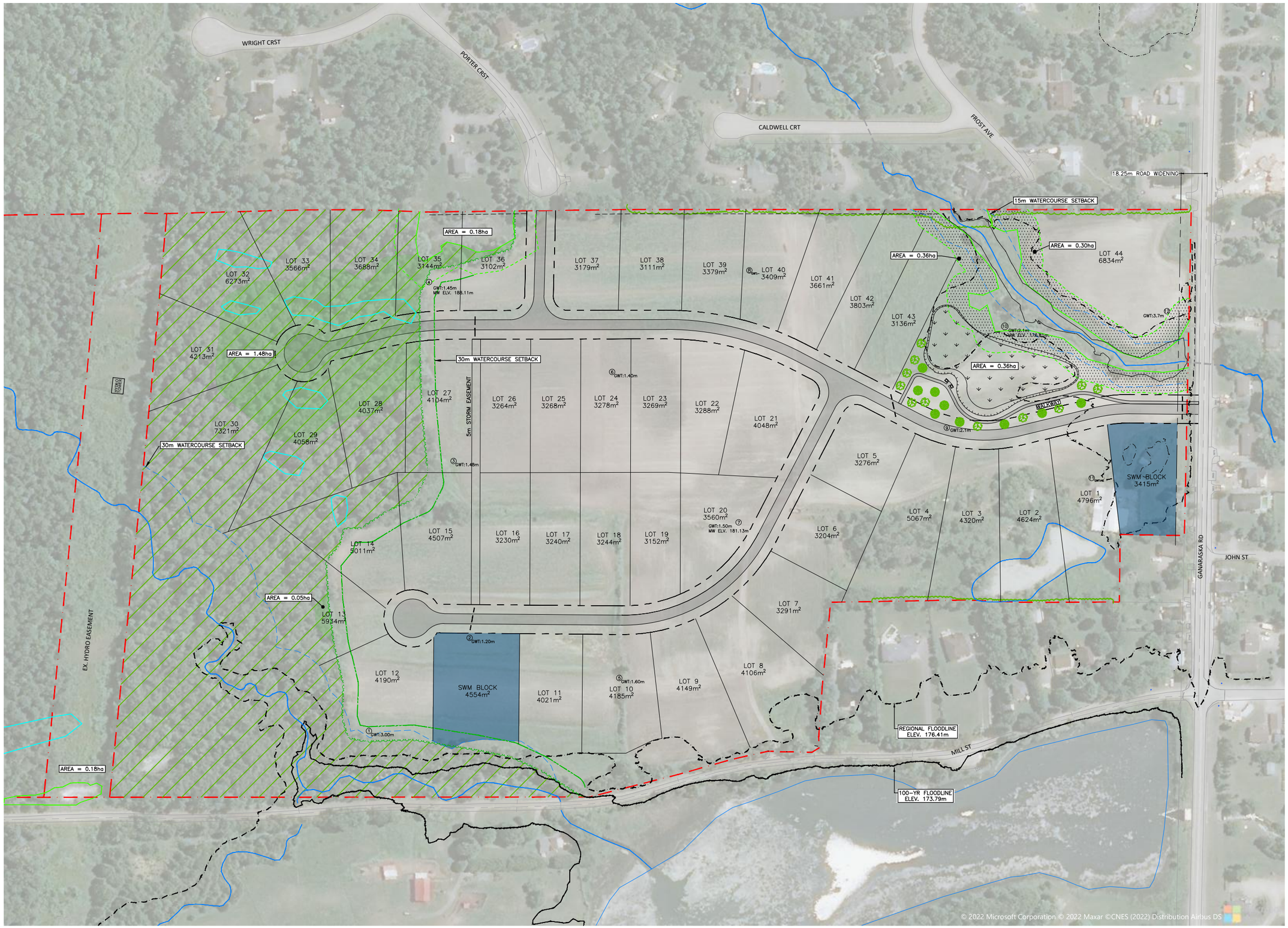
In addition to the above, we would like to know if the Town has anything on file related to the residential development located immediately east of the subject property. More specifically, if you could tell me when that Draft Plan of Subdivision was approved and provide a copy of the EIS (or similar environmental study that is part of the public record), that would be greatly appreciated.

Thanks,
Jeremy

Jeremy Prahl, B.Sc., EP, CAN-CISEC
Project Manager / Senior Biologist

Cambium Inc. - Barrie
Environmental | Building Sciences | Geotechnical | Construction Monitoring
p: 705.719.0700 x 412 | **c:** 249.359.0689 | **toll:** 866.217.7900 | **w:** cambium-inc.com

Appendix B
Concept Plan



LEGEND

- PROPERTY BOUNDARY
- SIGNIFICANT WOODLAND AREA
- WOODLAND REMOVAL
- SWM BLOCK
- WETLAND COMPENSATION
- WETLAND VEGETATION PLANTING AREAS
- WATERCOURSE
- WATERCOURSE SETBACK
- 100-YR FLOOD ELEV.
- REGIONAL FLOOD ELEV.
- WETLAND BOUNDARY
- 15m WETLAND SETBACK
- TOE OF SLOPE
- VERNAL POOLS

NOTES:

NO. OF LOTS: 44

TOTAL LOT AREA: 175,540m² (17.55ha)

WOODLAND TO BE REMOVED: 1.50ha

WETLAND AREA TO BE REMOVED: 0.18ha

WETLAND COMPENSATION AREA: 0.36ha

NO.	DATE (D/M/Y)	REVISION	BY
–	–	–	–

NOT FOR CONSTRUCTION

MONUMENT GEOMATICS
MONUMENTGE.COM

MONUMENT PROJECT No.:	–
DRAWN:	P.Q.
CHECKED:	–
ENGINEER:	–
DATE:	2022/02/18
SCALES:	HORZ. 1:2500
SCALES:	VERT.

MISTRAL LAND DEVELOPMENTS
GARDEN HILL DEVELOPMENT
CONCEPT PLAN

OPTION 5
OVERALL PLAN

DRAWING No.
CP-5

0 30 60 Meters

C:\Users\Patrick Quinn\Monument Geomatics\E&D-Garden Hill - General\4-Design\1-CSD\2022-21-01\GH&E Concept 5.dwg

Appendix C
Photographic Log

Photo 1 Agricultural pond in Community 3 at southwest corner of the Site, July 2021.

Photo 2 Perched culvert outlet on Ganaraska Road, July 2021.

Photo 3 Culvert inlet (embedded) on north side of Ganaraska Road, July 2021.

Photo 4 Southeast watercourse, looking upstream, July 2021.

Photo 5 Culvert inlet on Mill Street, southern crossing, July 2021.

Photo 6 West watercourse running parallel to Mill Street, looking upstream, July 2021.

Photo 7 Culvert outlet at northern Mill Street crossing, July 2021.

Photo 8 View of erosion scars of north watercourse within forested area, July 2021.

Photo 9 View of unmapped (north) watercourse, looking upstream, July 2021.

Photo 10 View of unmapped watercourse (north), looking upstream, July 2021.

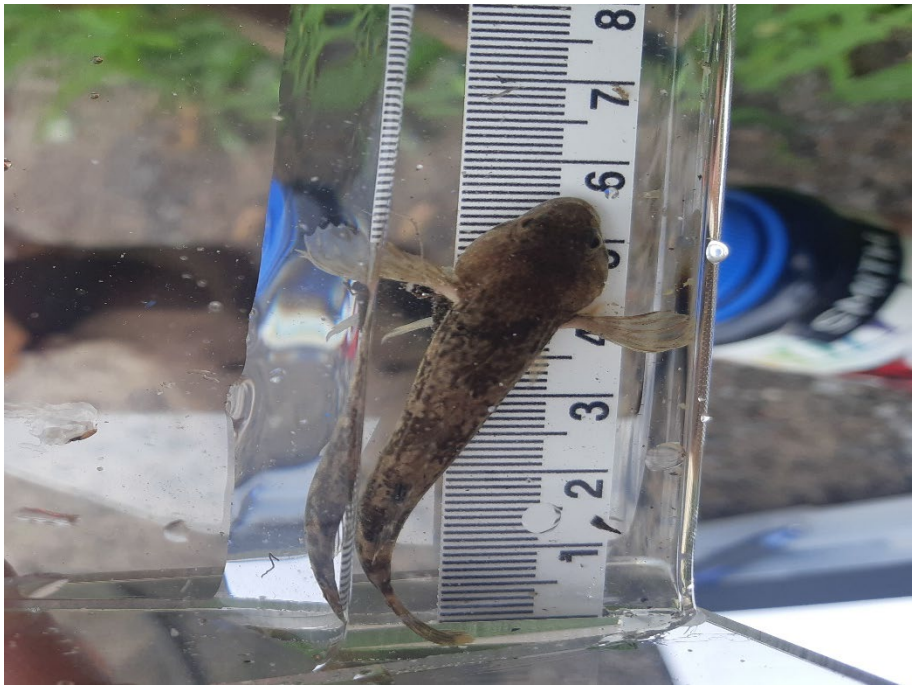
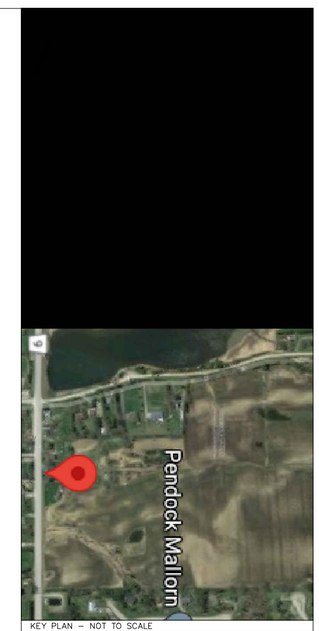


Photo 11 View of Mottled Sculpin, July 2021.

Photo 12 Barn Swallow nests in existing barn structure, July 2021.

Appendix D

Supporting Documents



KEY PLAN – NOT TO SCALE

IMAGERY
AERIAL IMAGERY SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY AND MAY NOT DEPICT CURRENT FEATURES.

TOPOGRAPHIC BASE PLAN OF
3852 GANARASKA ROAD
MUNICIPALITY OF PORT HOPE

SCALE 1 : 750 METRES

0 3 6 9 12 15 30 60

COORDINATES
COORDINATE VALUES AND DIGITAL FILE ARE IN GRID SYSTEM, UTM ZONE 17N, NAD83(CSRS)(2010)
COMBINED SCALE FACTOR = 1.000108

CONTOURS
CONTOURS SHOWN HEREON ARE DRAWN AT 0.20 METRE INTERVALS.

ELEVATIONS
ELEVATIONS ARE GEODETIC AND REFERRED TO THE CANADIAN GEODETIC VERTICAL DATUM (CGVD28) BY DIRECT MEASUREMENT TO A REAL TIME NETWORK.

CAUTION
THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK. THE WORK AND DRAWINGS HEREIN WERE COMPLETED FOR THE EXCLUSIVE USE OF OUR CLIENT AND NO LIABILITY IS ASSUMED TO ANY THIRD PARTIES OR SUBSEQUENT OWNERS.

LEGEND

#	DENOTES ROUND
DSE	DENOTES DOOR SILL ELEVATION
GSE	DENOTES GARAGE SILL ELEVATION
AN	DENOTES ANCHOR POINT
POMB	DENOTES MAILBOX
POU	DENOTES UTILITY POLE
POLP	DENOTES LIGHT POST
POULS	DENOTES UTILITY/LIGHT STANDARD POLE
HW	DENOTES HAND WELL
-OH-	DENOTES OVERHEAD UTILITY WIRES
CRW	DENOTES CONCRETE RETAINING WALL
CSP	DENOTES CORRUGATED STEEL PIPE CULVERT
CPP	DENOTES CORRUGATED PLASTIC PIPE CULVERT
INV	DENOTES INVERT ELEVATION AT CENTRE
TB	DENOTES TERMINAL BOX
MW	DENOTES MONITORING WELL ELEVATION AT GROUND
	DENOTES SIGN
	DENOTES CONIFEROUS TREE W/TRUNK DIAMETER
	DENOTES DECIDUOUS TREE W/TRUNK DIAMETER
x 124.6	DENOTES SPOT ELEVATION
BSP	DENOTES BOTTOM OF SLOPE
TSP	DENOTES TOP OF SLOPE
MF	DENOTES METAL FENCE
PWF	DENOTES POST & WIRE FENCE
BF	DENOTES BOARD FENCE
CTP	DENOTES CONCRETE PAD

IBW SURVEYORS

IBWSURVEYORS.COM | 1.800.667.0696

PARTY CHIEF: SK | DRAWN BY: MA | CHECKED BY: • | PLOT DATE: JUNE 01,2021
FILE NAME: A-027461-Topo.dwg

No.	Date	Initials	Important Jot File	Remarks
1	2021.06.01	M.A	A-027461-20210601	TOPO BASE PLAN DRAFT
2	2021-XX-XX	•	•	
3	2021-XX-XX	•	•	
4	2021-XX-XX	•	•	
5	2021-XX-XX	•	•	
6	2021-XX-XX	•	•	

Appendix E

Vegetation Species List

VEGETATION COMMUNITY CLASSIFICATION: MAM2-2 COMMUNITY #: 2 LOCATION: 3852 Ganaraska Rd. COORDINATES: 44.5973455, -78.1955779

PROJECT NUMBER: 12728-001 DATE: August 31, 2021 PROJECT MANAGER: Jeremy Prahl FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
American Burreed	*Sparganium americanum*	*Sparganiaceae*	-5	6			S5
American Speedwell	*Veronica americana*	*Scrophulariaceae*	-5	6			S5
Balsam Poplar	*Populus balsamifera*	*Salicaceae*	-3	4			S5
Bebb's Sedge	*Carex bebbii*	*Cyperaceae*	-5	3			S5
Bebb's Willow	*Salix bebbiana*	*Salicaceae*	-3	4			S5
Broad-leaved Arrowhead	*Sagittaria latifolia*	*Alismataceae*	-5	4			S5
Broad-leaved Cattail	*Typha latifolia*	*Typhaceae*	-5	1			S5
Brownish Sedge	*Carex brunnescens ssp. brunnescens*	*Cyperaceae*	-3	6			SU
Bull Thistle	*Cirsium vulgare*	*Asteraceae*	3				SNA
Canada Goldenrod	*Solidago canadensis var. canadensis*	*Asteraceae*	3	1			S5
Common Boneset	*Eupatorium perfoliatum*	*Asteraceae*	-3	2			S5
Common Lilac	*Syringa vulgaris*	*Oleaceae*	5				SNA
Common Milkweed	*Asclepias syriaca*	*Apocynaceae*	5	0			S5
Common Ragweed	*Ambrosia artemisiifolia*	*Asteraceae*	3	0			S5
Common Winterberry	*Ilex verticillata*	*Aquifoliaceae*	-3	5			S5
Cyperus-like Sedge	*Carex pseudocyperus*	*Cyperaceae*	-5	6			S5
Eastern White Cedar	*Thuja occidentalis*	*Cupressaceae*	-3	4			S5
European Buckthorn	*Rhamnus cathartica*	*Rhamnaceae*	0				SNA
Giant Sunflower	*Helianthus giganteus*	*Asteraceae*	-3	6			S5
Grass-leaved Goldenrod	*Euthamia graminifolia*	*Asteraceae*	0	2			S5
Harlequin Blue Flag	*Iris versicolor*	*Iridaceae*	-5	5			S5
Heart-leaved Willow	*Salix cordata*	*Salicaceae*	0	9			S4
Manitoba Maple	*Acer negundo*	*Aceraceae*	0	0			S5
Marsh Cinquefoil	*Comarum palustre*	*Rosaceae*	-5	7			S5
Necklace Sedge	*Carex projecta*	*Cyperaceae*	-3	5			S5
Nodding Beggarticks	*Bidens cernua*	*Asteraceae*	-5	2			S5

VEGETATION COMMUNITY CLASSIFICATION: MAM2-2 | COMMUNITY #: 2 | LOCATION: 3852 Ganaraska Rd. | COORDINATES: 44.5973455, -78.1955779

PROJECT NUMBER: 12728-001 | DATE: August 31, 2021 | PROJECT MANAGER: Jeremy Prahl | FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Purple Loosestrife	*Lythrum salicaria*	*Lythraceae*	-5				SNA
Pussy Willow	*Salix discolor*	*Salicaceae*	-3	3			S5
Red-osier Dogwood	*Cornus sericea*	*Cornaceae*	-3	2			S5
Reed Canarygrass	*Phalaris arundinacea var. arundinacea*	*Poaceae*	-3	0			S5
Speckled Alder	*Alnus incana ssp. rugosa*	*Betulaceae*	-3	6			S5
Spotted Jewelweed	*Impatiens capensis*	*Balsaminaceae*	-3	4			S5
Spotted Joe Pye Weed	*Eutrochium maculatum var. maculatum*	*Asteraceae*	-5	3			S5
Spotted Lady's-thumb	*Persicaria maculosa*	*Polygonaceae*	-3				SNA
Stinging Nettle	*Urtica dioica*	*Urticaceae*	0	2			S5
Tall Goldenrod	*Solidago altissima*	*Asteraceae*	3	1			S5
White Elm	*Ulmus americana*	*Ulmaceae*	-3	3			S5
Wild Carrot	*Daucus carota*	*Apiaceae*	5				SNA

VEGETATION COMMUNITY CLASSIFICATION: CUM1-1 COMMUNITY #: 3 LOCATION: 3852 Ganaraska Road. COORDINATES: 44.5973443, -78.1955767

PROJECT NUMBER: 12728-001 DATE: August 31, 2021 PROJECT MANAGER: Jeremy Prahl FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Alfalfa	*Medicago sativa ssp. sativa*	*Fabaceae*	5				SNA
Black-eyed Susan	*Rudbeckia hirta var. pulcherrima*	*Asteraceae*	3	0			S5
Common Evening-primrose	*Oenothera biennis*	*Onagraceae*	3	0			S5
Common Timothy	*Phleum pratense ssp. pratense*	*Poaceae*	3				SNA
Oxeye Daisy	*Leucanthemum vulgare*	*Asteraceae*	5				SNA
Smooth Brome	*Bromus inermis*	*Poaceae*	5				SNA
Tufted Vetch	*Vicia cracca*	*Fabaceae*	5				SNA
Wild Carrot	*Daucus carota*	*Apiaceae*	5				SNA

VEGETATION COMMUNITY CLASSIFICATION: CUW

COMMUNITY #: 5

LOCATION: 3852 Ganaraska Road

COORDINATES: 44.5973448, -78.1955776

PROJECT NUMBER: 12728-001

DATE: August 31, 2021

PROJECT MANAGER: Jeremy Prahl

FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Bittersweet Nightshade	*Solanum dulcamara*	*Solanaceae*	0				SNA
Broad-leaved Helleborine	*Epipactis helleborine*	*Orchidaceae*	3				SNA
Eastern White Cedar	*Thuja occidentalis*	*Cupressaceae*	-3	4			S5
Orchard Grass	*Dactylis glomerata*	*Poaceae*	3				SNA
Reed Canarygrass	*Phalaris arundinacea var. arundinacea*	*Poaceae*	-3	0			S5
Smooth Brome	*Bromus inermis*	*Poaceae*	5				SNA
Trembling Aspen	*Populus tremuloides*	*Salicaceae*	0	2			S5

VEGETATION COMMUNITY CLASSIFICATION: MAS2-1 COMMUNITY #: 7 LOCATION: 3852 Ganaraska Road COORDINATES: 44.5973453, -78.1955775

PROJECT NUMBER: 12728-001 DATE: August 31, 2021 PROJECT MANAGER: Jeremy Prahl FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Basswood	*Tilia americana*	*Tiliaceae*	3	4			S5
Bittersweet Nightshade	*Solanum dulcamara*	*Solanaceae*	0				SNA
Broad-leaved Cattail	*Typha latifolia*	*Typhaceae*	-5	1			S5
Common Boneset	*Eupatorium perfoliatum*	*Asteraceae*	-3	2			S5
Grass-leaved Goldenrod	*Euthamia graminifolia*	*Asteraceae*	0	2			S5
Heart-leaved Willow	*Salix cordata*	*Salicaceae*	0	9			S4
Purple-stemmed Aster	*Symphyotrichum puniceum var. puniceum*	*Asteraceae*	-5	6			S5
Pussy Willow	*Salix discolor*	*Salicaceae*	-3	3			S5
Reed Canarygrass	*Phalaris arundinacea var. arundinacea*	*Poaceae*	-3	0			S5
Sensitive Fern	*Onoclea sensibilis*	*Dryopteridaceae*	-3	4			S5
Spotted Jewelweed	*Impatiens capensis*	*Balsaminaceae*	-3	4			S5
Spotted Joe Pye Weed	*Eutrochium maculatum var. maculatum*	*Asteraceae*	-5	3			S5

VEGETATION COMMUNITY CLASSIFICATION: FOC4-1 COMMUNITY #: 8 LOCATION: 3852 Ganaraska Road COORDINATES: 44.5973449, -78.1955894

PROJECT NUMBER: 12728-001 DATE: August 31, 2021 PROJECT MANAGER: Jeremy Prahl FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Black Ash	*Fraxinus nigra*	*Oleaceae*	-3	7			S3
Broad-leaved Helleborine	*Epipactis helleborine*	*Orchidaceae*	3				SNA
Common Lady Fern	*Athyrium filix-femina*	*Dryopteridaceae*	0	4			S5
Eastern White Cedar	*Thuja occidentalis*	*Cupressaceae*	-3	4			S5
Sensitive Fern	*Onoclea sensibilis*	*Dryopteridaceae*	-3	4			S5
Spotted Jewelweed	*Impatiens capensis*	*Balsaminaceae*	-3	4			S5
Trembling Aspen	*Populus tremuloides*	*Salicaceae*	0	2			S5
Wild Lily-of-the-valley	*Maianthemum canadense ssp. canadense*	*Liliaceae*	3	5			S5

VEGETATION COMMUNITY CLASSIFICATION: FOM7-1 COMMUNITY #: 9 LOCATION: 3852 Ganaraska Road COORDINATES: 44.5973454, -78.1955782

PROJECT NUMBER: 12728-001 DATE: August 31, 2021 PROJECT MANAGER: Jeremy Prahl FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Alternate-leaved Dogwood	*Cornus alternifolia*	*Cornaceae*	3	6			S5
American Beech	*Fagus grandifolia*	*Fagaceae*	3	6			S4
Balsam Fir	*Abies balsamea*	*Pinaceae*	-3	5			S5
Basswood	*Tilia americana*	*Tiliaceae*	3	4			S5
Broad-leaved Enchanter's Nightshade	*Circaea canadensis*	*Onagraceae*	3	2			S5
Broad-leaved Helleborine	*Epipactis helleborine*	*Orchidaceae*	3				SNA
Christmas Fern	*Polystichum acrostichoides*	*Dryopteridaceae*	3	5			S5
Drooping Woodland Sedge	*Carex arctata*	*Cyperaceae*	5	5			S5
Dwarf Scouring-rush	*Equisetum scirpoides*	*Equisetaceae*	0	7			S5
Eastern Hemlock	*Tsuga canadensis*	*Pinaceae*	3	7			S5
Eastern Hop-hornbeam	*Ostrya virginiana*	*Betulaceae*	3	4			S5
Eastern White Cedar	*Thuja occidentalis*	*Cupressaceae*	-3	4			S5
Eastern White Pine	*Pinus strobus*	*Pinaceae*	3	4			S5
Giant Solomon's Seal	*Polygonatum biflorum var. commutatum*	*Liliaceae*	3	8			S4
Hairy Solomon's Seal	*Polygonatum pubescens*	*Liliaceae*	5	5			S5
Jack-in-the-pulpit	*Arisaema triphyllum ssp. triphyllum*	*Araceae*	-3	5			S5
Maple-leaved Viburnum	*Viburnum acerifolium*	*Caprifoliaceae*	5	6			S5
Northern Red Oak	*Quercus rubra*	*Fagaceae*	3	6			S5
Northern Starflower	*Lysimachia borealis*	*Primulaceae*	0	6			S5
Paper Birch	*Betula papyrifera*	*Betulaceae*	3	2			S5
Partridgeberry	*Mitchella repens*	*Rubiaceae*	3	6			S5
Red Maple	*Acer rubrum*	*Aceraceae*	0	4			S5
Red Trillium	*Trillium erectum*	*Liliaceae*	3	6			S5
Sugar Maple	*Acer saccharum*	*Aceraceae*	3	4			S5
Trembling Aspen	*Populus tremuloides*	*Salicaceae*	0	2			S5
White Trillium	*Trillium grandiflorum*	*Liliaceae*	3	5			S5

VEGETATION COMMUNITY CLASSIFICATION: FOM7-1 COMMUNITY #: 9 LOCATION: 3852 Ganaraska Road COORDINATES: 44.5973454, -78.1955782

PROJECT NUMBER: 12728-001 DATE: August 31, 2021 PROJECT MANAGER: Jeremy Prahl FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Wild Lily-of-the-valley	*Maianthemum canadense ssp. canadense*	*Liliaceae*	3	5			S5
Wild Sarsaparilla	*Aralia nudicaulis*	*Araliaceae*	3	4			S5
Yellow Trout-lily	*Erythronium americanum ssp. americanum*	*Liliaceae*	5	5			S5
Zigzag Goldenrod	*Solidago flexicaulis*	*Asteraceae*	3	6			S5

VEGETATION COMMUNITY CLASSIFICATION: FOD6-5 | COMMUNITY #: 10 | LOCATION: 3852 Ganaraska Road | COORDINATES: 44.5973454, -78.1955781

PROJECT NUMBER: 12728-001 | DATE: August 31, 2021 | PROJECT MANAGER: Jeremy Prahl | FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Alternate-leaved Dogwood	*Cornus alternifolia*	*Cornaceae*	3	6			S5
American Beech	*Fagus grandifolia*	*Fagaceae*	3	6			S4
Basswood	*Tilia americana*	*Tiliaceae*	3	4			S5
Black Cherry	*Prunus serotina var. serotina*	*Rosaceae*	3	3			S5
Dwarf Scouring-rush	*Equisetum scirpoides*	*Equisetaceae*	0	7			S5
Eastern Hop-hornbeam	*Ostrya virginiana*	*Betulaceae*	3	4			S5
Eastern Poison Ivy	*Toxicodendron radicans var. radicans*	*Anacardiaceae*	0	2			S5
Large False Solomon's Seal	*Maianthemum racemosum*	*Liliaceae*	3	4			S5
Large-toothed Aspen	*Populus grandidentata*	*Salicaceae*	5	5			S5
Northern Red Oak	*Quercus rubra*	*Fagaceae*	3	6			S5
Paper Birch	*Betula papyrifera*	*Betulaceae*	3	2			S5
Pennsylvania Sedge	*Carex pensylvanica*	*Cyperaceae*	5	5			S5
Sharp-lobed Hepatica	*Hepatica acutiloba*	*Ranunculaceae*	5	8			S5
Sugar Maple	*Acer saccharum*	*Aceraceae*	3	4			S5
White Ash	*Fraxinus americana*	*Oleaceae*	3	4			S4
White Trillium	*Trillium grandiflorum*	*Liliaceae*	3	5			S5
Wild Lily-of-the-valley	*Maianthemum canadense ssp. canadense*	*Liliaceae*	3	5			S5
Wild Sarsaparilla	*Aralia nudicaulis*	*Araliaceae*	3	4			S5

VEGETATION COMMUNITY CLASSIFICATION: CUT | COMMUNITY #: 11 | LOCATION: 3852 Ganaraska Road | COORDINATES: 44.5973454, -78.1955785

PROJECT NUMBER: 12728-001 | DATE: August 31, 2021 | PROJECT MANAGER: Jeremy Prahl | FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Black Raspberry	*Rubus occidentalis*	*Rosaceae*	5	2			S5
Black-eyed Susan	*Rudbeckia hirta var. pulcherrima*	*Asteraceae*	3	0			S5
Canada Tick-trefoil	*Desmodium canadense*	*Fabaceae*	0	5			S4
Chokecherry	*Prunus virginiana var. virginiana*	*Rosaceae*	3	2			S5
Common Burdock	*Arctium minus*	*Asteraceae*	3				SNA
Common Evening-primrose	*Oenothera biennis*	*Onagraceae*	3	0			S5
Common Juniper	*Juniperus communis var. communis*	*Cupressaceae*	3				SNA
Common Milkweed	*Asclepias syriaca*	*Apocynaceae*	5	0			S5
Common Mullein	*Verbascum thapsus ssp. thapsus*	*Scrophulariaceae*	5				SNA
Eastern White Cedar	*Thuja occidentalis*	*Cupressaceae*	-3	4			S5
Oxeye Daisy	*Leucanthemum vulgare*	*Asteraceae*	5				SNA
Reed Canarygrass	*Phalaris arundinacea var. arundinacea*	*Poaceae*	-3	0			S5
Smooth Brome	*Bromus inermis*	*Poaceae*	5				SNA
Staghorn Sumac	*Rhus typhina*	*Anacardiaceae*	3	1			S5
Wild Carrot	*Daucus carota*	*Apiaceae*	5				SNA

NOTES: Cultural thicket along hydro corridor

VEGETATION COMMUNITY CLASSIFICATION: SWM1-1 | COMMUNITY #: 12 | LOCATION: 3852 Ganaraska Road | COORDINATES: 44.5973464, -78.1955788

PROJECT NUMBER: 12728-001 | DATE: August 31, 2021 | PROJECT MANAGER: Jeremy Prahl | FIELD STAFF: Keegan McKitterick

FIELD SHEET – Vegetation Species List

Common Name	Scientific Name	Family	CoW	CoC	SARA	SARO	S-Rank
Broad-leaved Cattail	*Typha latifolia*	*Typhaceae*	-5	1			S5
Chokecherry	*Prunus virginiana var. virginiana*	*Rosaceae*	3	2			S5
Common Lady Fern	*Athyrium filix-femina*	*Dryopteridaceae*	0	4			S5
Common Lady Fern	*Athyrium filix-femina*	*Dryopteridaceae*	0	4			S5
Eastern Hemlock	*Tsuga canadensis*	*Pinaceae*	3	7			S5
Eastern White Cedar	*Thuja occidentalis*	*Cupressaceae*	-3	4			S5
Eastern White Cedar	*Thuja occidentalis*	*Cupressaceae*	-3	4			S5
Fowl Mannagrass	*Glyceria striata var. striata*	*Poaceae*	-5	3			S5
Nodding Beggarticks	*Bidens cernua*	*Asteraceae*	-5	2			S5
Red-osier Dogwood	*Cornus sericea*	*Cornaceae*	-3	2			S5
Small Duckweed	*Lemna minor*	*Lemnaceae*	-5	5			S5?
Spotted Jewelweed	*Impatiens capensis*	*Balsaminaceae*	-3	4			S5
Spotted Jewelweed	*Impatiens capensis*	*Balsaminaceae*	-3	4			S5
Spotted Joe Pye Weed	*Eutrochium maculatum var. maculatum*	*Asteraceae*	-5	3			S5
Spotted Water-hemlock	*Cicuta maculata var. maculata*	*Apiaceae*	-5	6			S5
Spotted Water-hemlock	*Cicuta maculata var. maculata*	*Apiaceae*	-5	6			S5
Swamp Milkweed	*Asclepias incarnata ssp. incarnata*	*Apocynaceae*	-5	6			S5
Three-parted Beggarticks	*Bidens tripartita*	*Asteraceae*	-3	5			S5?
White Elm	*Ulmus americana*	*Ulmaceae*	-3	3			S5
White Elm	*Ulmus americana*	*Ulmaceae*	-3	3			S5
Woodland Horsetail	*Equisetum sylvaticum*	*Equisetaceae*	-3	7			S5

NOTES: Large unvegetated area in center of community - likely wet for most of year

Appendix F

Fish Species List

Table 1 - Fish Species List and Life History Information

Family	Common name	Scientific name	S-Rank	SARA	ESA	Tolerance [1]	Thermal Regime [1]	Spawning Months [1]	Spawning Habitat Preferences [2]														
									Water depth (m)				Cover		Substrate								
									0-1	1-2	2-5	5+	Submergent Vegetation	Emergent vegetation	Bedrock	Boulder	Cobble	Rubble	Gravel	Sand	Silt	Clay	Hard-pan Clay
Centrarchidae	Black Crappie	*Pomoxis nigromaculatus*	S4			Tolerant	Coolwater	May-June	X	X	X	-	high	high	-	-	-	-	high	high	high	-	-
Cyprinidae	Bluntnose Minnow	*Pimephales notatus*	S5			Intermediate	Warmwater	June-August	X	X	X	-	medium	medium	-	medium	medium	high	high	medium	-	-	-
Salmonidae	Brook Trout	*Salvelinus fontinalis fontinalis*	S5			Intolerant	Coldwater	Sept-Nov	X	X	-	-	-	-	-	-	-	high	high	medium	low	-	-
Ictaluridae	Brown Bullhead	*Ameiurus nebulosus*	S5			Intermediate	Warmwater	May-June	X	X	-	-	medium	medium	-	-	-	-	-	high	high	high	-
Salmonidae	Brown Trout	*Salmo trutta*	SNA			Intolerant	Coldwater	Oct-Nov	X	X	0	0	-	-	-	-	medium	high	high	low	-	-	-
Cyprinidae	Common Shiner	*Luxilus cornutus*	S5			Intermediate	Coolwater	May-June	X	-	-	-	low	low	-	-	-	medium	high	medium	-	-	-
Cyprinidae	Creek Chub	*Semotilus atromaculatus*	S5			Intermediate	Coolwater	May-June	X	-	-	-	-	-	-	-	-	high	high	high	-	-	-
Cyprinidae	Blacknose Dace	*Rhinichthys atratulus*	S5			Intermediate	Coolwater	May-June	X	-	-	-	-	-	-	-	-	high	high	medium	-	-	-
Cyprinidae	Fathead Minnow	*Pimephales promelas*	S5			Tolerant	Warmwater	May-August	X	X	-	-	medium	medium	-	-	-	-	medium	high	high	-	-
Cyprinidae	Longnose Dace	*Rhinichthys cataractae*	S5			Intermediate	Coolwater	May-July	X	X	-	-	-	-	-	-	-	medium	high	high	medium	-	-
Centrarchidae	Pumpkinseed	*Lepomis gibbosus*	S5			Intermediate	Warmwater	May-August	X	X	-	-	high	high	-	-	-	-	high	high	-	medium	-
Centrarchidae	Rock Bass	*Ambloplites rupestris*	S5			Intermediate	Coolwater	May-June	X	X	-	-	low	low	-	-	high	high	high	medium	medium	medium	-
Catostomidae	White Sucker	*Catostomus commersoni*	S5			Tolerant	Coolwater	April-June	X	X	-	-	low	low	-	-	-	medium	high	medium	-	-	-
Cottidae	Mottled Sculpin	*Cottus bairdi*	S5			Intermediate	Coolwater	April-May	X	-	-	-	-	-	-	high	high	high	high	high	-	-	-

Note:

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

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

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

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

Appendix G

Bird Species List

VEGETATION COMMUNITY CLASSIFICATION: Cultural Meadow

LOCATION: 3852 Ganaraska Rd, Port Hope

COORDINATES: 44.5973454, -78.1955783

POINT COUNT #: 1

PROJECT NUMBER: 12728-001

DATES: June 09, 2021 June 15, 2021

PROJECT MANAGER: Jeremy Prahl

FIELD STAFF: Keegan McKitterick

FIELD SHEET – Bird Species List

June 09, 2021

Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Goldfinch	*Spinus tristis*	*Fringillidae*			S5B	P
Baltimore Oriole	*Icterus galbula*	*Icteridae*			S4B	S
Chestnut-sided Warbler	*Setophaga pensylvanica*	*Parulidae*			S5B	S
Common Yellowthroat	*Geothlypis trichas*	*Parulidae*			S5B	S
Red-tailed Hawk	*Buteo jamaicensis*	*Accipitridae*		NAR	S5	H
Red-winged Blackbird	*Agelaius phoeniceus*	*Icteridae*			S4	P
Ring-billed Gull	*Larus delawarensis*	*Laridae*			S5B,S4N	X
Song Sparrow	*Melospiza melodia*	*Passerellidae*			S5B	S

June 15, 2021

Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Crow	*Corvus brachyrhynchos*	*Corvidae*			S5B	X
American Goldfinch	*Spinus tristis*	*Fringillidae*			S5B	P
American Robin	*Turdus migratorius*	*Turdidae*			S5B	P
Brown-headed Cowbird	*Molothrus ater*	*Icteridae*			S4B	X
Chestnut-sided Warbler	*Setophaga pensylvanica*	*Parulidae*			S5B	T
Common Grackle	*Quiscalus quiscula*	*Icteridae*			S5B	S
Common Yellowthroat	*Geothlypis trichas*	*Parulidae*			S5B	T
Eastern Kingbird	*Tyrannus tyrannus*	*Tyrannidae*			S4B	H
Eastern Phoebe	*Sayornis phoebe*	*Tyrannidae*			S5B	S
European Starling	*Sturnus vulgaris*	*Sturnidae*			SNA	S
Red-winged Blackbird	*Agelaius phoeniceus*	*Icteridae*			S4	S
Song Sparrow	*Melospiza melodia*	*Passerellidae*			S5B	T

VEGETATION COMMUNITY CLASSIFICATION:	Cultural Meadow	LOCATION:	3852 Ganaraska Rd, Port Hope	COORDINATES:	44.5973454, -78.1955783	POINT COUNT #:	1
PROJECT NUMBER:	12728-001	DATES:	June 09, 2021 June 15, 2021	PROJECT MANAGER:	Jeremy Prahl	FIELD STAFF:	Keegan McKitterick

FIELD SHEET – Bird Species List

X = Species observed in its breeding season (no breeding evidence)
H = Species observed in its breeding season in suitable nesting habitat
S= Singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat
P= Pair observed in their breeding season in suitable nesting habitat
T= Permanent territory presumed through registration of territorial song on at least 2 days, a week apart, at the same place
D= Courtship or display between a male and a female or 2 males, including courtship feeding or copulation
V= Visiting probable nest site
X = Species observed in its breeding season (no breeding evidence)
CF= Adult carrying food for young
NE= Nest containing eggs

A = Agitated behaviour or anxiety calls of an adult
B= Brood patch on adult female or cloacal protuberance on adult male
N= Nest-building or excavation of nest hole
DD= Distraction display or injury feigning
NU= Used nest or egg shell found (occupied or laid within the period of study)
FY= Recently fledged young or downy young, including young incapable to sustain flight
AE= Adults leaving or entering nest site in circumstances indicating occupied nest
FS= Adult carrying faecal sac
NY= Nest with young seen or heard

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

NOTES: Edge of cultural meadow/agricultural field and riparian wetland

VEGETATION COMMUNITY CLASSIFICATION: Forest

LOCATION: 3852 Ganaraska Rd, Port Hope

COORDINATES: 44.5973455, -78.1955777

POINT COUNT #: 2

PROJECT NUMBER: 12728-001

DATES: June 09, 2021 June 15, 2021

PROJECT MANAGER: Jeremy Prahl

FIELD STAFF: Keegan McKitterick

FIELD SHEET – Bird Species List

June 09, 2021

Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Robin	*Turdus migratorius*	*Turdidae*			S5B	P
Brown-headed Cowbird	*Molothrus ater*	*Icteridae*			S4B	X
Chestnut-sided Warbler	*Setophaga pensylvanica*	*Parulidae*			S5B	S
Common Yellowthroat	*Geothlypis trichas*	*Parulidae*			S5B	S
Hairy Woodpecker	*Picoides villosus*	*Picidae*			S5	H
Northern Flicker	*Colaptes auratus*	*Picidae*			S4B	S
Ovenbird	*Seiurus aurocapilla*	*Parulidae*			S4B	S
Red-eyed Vireo	*Vireo olivaceus*	*Vireonidae*			S5B	S
Red-winged Blackbird	*Agelaius phoeniceus*	*Icteridae*			S4	S
Veery	*Catharus fuscescens*	*Turdidae*			S4B	S

June 15, 2021

Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
American Robin	*Turdus migratorius*	*Turdidae*			S5B	P
Chestnut-sided Warbler	*Setophaga pensylvanica*	*Parulidae*			S5B	T
Common Yellowthroat	*Geothlypis trichas*	*Parulidae*			S5B	T
Eastern Kingbird	*Tyrannus tyrannus*	*Tyrannidae*			S4B	H
Hairy Woodpecker	*Picoides villosus*	*Picidae*			S5	H
Mourning Dove	*Zenaida macroura*	*Columbidae*			S5	X
Northern Flicker	*Colaptes auratus*	*Picidae*			S4B	T
Red-eyed Vireo	*Vireo olivaceus*	*Vireonidae*			S5B	T
Red-winged Blackbird	*Agelaius phoeniceus*	*Icteridae*			S4	P
Ruby-crowned Kinglet	*Regulus calendula*	*Regulidae*			S4B	S
Veery	*Catharus fuscescens*	*Turdidae*			S4B	T

VEGETATION COMMUNITY CLASSIFICATION:	Forest	LOCATION:	3852 Ganaraska Rd, Port Hope	COORDINATES:	44.5973455, -78.1955777	POINT COUNT #:	2
PROJECT NUMBER:	12728-001	DATES:	June 09, 2021 June 15, 2021	PROJECT MANAGER:	Jeremy Prahl	FIELD STAFF:	Keegan McKitterick

FIELD SHEET – Bird Species List

X = Species observed in its breeding season (no breeding evidence)
H = Species observed in its breeding season in suitable nesting habitat
S= Singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat
P= Pair observed in their breeding season in suitable nesting habitat
T= Permanent territory presumed through registration of territorial song on at least 2 days, a week apart, at the same place
D= Courtship or display between a male and a female or 2 males, including courtship feeding or copulation
V= Visiting probable nest site
X = Species observed in its breeding season (no breeding evidence)
CF= Adult carrying food for young
NE= Nest containing eggs

A = Agitated behaviour or anxiety calls of an adult
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N= Nest-building or excavation of nest hole
DD= Distraction display or injury feigning
NU= Used nest or egg shell found (occupied or laid within the period of study)
FY= Recently fledged young or downy young, including young incapable to sustain flight
AE= Adults leaving or entering nest site in circumstances indicating occupied nest
FS= Adult carrying faecal sac
NY= Nest with young seen or heard

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

NOTES: Edge of forest and agricultural field.

VEGETATION COMMUNITY CLASSIFICATION: Forest

LOCATION: 3852 Ganaraska Rd, Port Hope

COORDINATES: 44.5973454, -78.1955782

POINT COUNT #: 3

PROJECT NUMBER: 12728-001

DATES: June 09, 2021 June 15, 2021

PROJECT MANAGER: Jeremy Prahl

FIELD STAFF: Keegan McKitterick

FIELD SHEET – Bird Species List

June 09, 2021

Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
Black-capped Chickadee	*Poecile atricapillus*	*Paridae*			S5	P
Black-throated Blue Warbler	*Setophaga caerulescens*	*Parulidae*			S5B	S
Black-throated Green Warbler	*Setophaga virens*	*Parulidae*			S5B	H
Brown Creeper	*Certhia americana*	*Certhiidae*			S5B	S
Brown Thrasher	*Toxostoma rufum*	*Mimidae*			S4B	S
Mourning Dove	*Zenaida macroura*	*Columbidae*			S5	X
Northern Waterthrush	*Parkesia noveboracensis*	*Parulidae*			S5B	S
Ovenbird	*Seiurus aurocapilla*	*Parulidae*			S4B	S
Pileated Woodpecker	*Dryocopus pileatus*	*Picidae*			S5	S
Pine Warbler	*Setophaga pinus*	*Parulidae*			S5B	S
Red-eyed Vireo	*Vireo olivaceus*	*Vireonidae*			S5B	S
Ruby-crowned Kinglet	*Regulus calendula*	*Regulidae*			S4B	S
Veery	*Catharus fuscescens*	*Turdidae*			S4B	S
White-breasted Nuthatch	*Sitta carolinensis*	*Sittidae*			S5	S

June 15, 2021

Common Name	Scientific Name	Family	SARA	SARO	S-Rank	Breeding Evidence
Black-capped Chickadee	*Poecile atricapillus*	*Paridae*			S5	S
Black-throated Blue Warbler	*Setophaga caerulescens*	*Parulidae*			S5B	T
Blue Jay	*Cyanocitta cristata*	*Corvidae*			S5	X
Northern Waterthrush	*Parkesia noveboracensis*	*Parulidae*			S5B	T
Pileated Woodpecker	*Dryocopus pileatus*	*Picidae*			S5	T
Ruby-crowned Kinglet	*Regulus calendula*	*Regulidae*			S4B	T
Song Sparrow	*Melospiza melodia*	*Passerellidae*			S5B	S
White-breasted Nuthatch	*Sitta carolinensis*	*Sittidae*			S5	T

VEGETATION COMMUNITY CLASSIFICATION:	Forest	LOCATION:	3852 Ganaraska Rd, Port Hope	COORDINATES:	44.5973454, -78.1955782	POINT COUNT #:	3
PROJECT NUMBER:	12728-001	DATES:	June 09, 2021 June 15, 2021	PROJECT MANAGER:	Jeremy Prahl	FIELD STAFF:	Keegan McKitterick

FIELD SHEET – Bird Species List

X = Species observed in its breeding season (no breeding evidence)
H = Species observed in its breeding season in suitable nesting habitat
S= Singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat
P= Pair observed in their breeding season in suitable nesting habitat
T= Permanent territory presumed through registration of territorial song on at least 2 days, a week apart, at the same place
D= Courtship or display between a male and a female or 2 males, including courtship feeding or copulation
V= Visiting probable nest site
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CF= Adult carrying food for young
NE= Nest containing eggs

A = Agitated behaviour or anxiety calls of an adult
B= Brood patch on adult female or cloacal protuberance on adult male
N= Nest-building or excavation of nest hole
DD= Distraction display or injury feigning
NU= Used nest or egg shell found (occupied or laid within the period of study)
FY= Recently fledged young or downy young, including young incapable to sustain flight
AE= Adults leaving or entering nest site in circumstances indicating occupied nest
FS= Adult carrying faecal sac
NY= Nest with young seen or heard

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

NOTES: Edge of forested area (north) and hydro corridor, near watercourse

Appendix H

Significant Wildlife Habitat Assessment

APPENDIX H. Significant Wildlife Habitat Screening

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH (Y/N)	Confirmed SWH (Y/N)	Additional Notes
Seasonal Concentration Areas of Animals						
Waterfowl Stopover and Staging Areas (Terrestrial)	Ducks	Cultural Ecosites: CUM1, CUT1	Fields that flood during spring (mid-March to May).	N	N/A	N/A
Waterfowl Stopover and Staging Area (Aquatic)	Ducks, Geese	Marshes, Swamps, Shallow Water Ecosites: MAS1,MAS2, MAS3, SAS1 SAM1, SAF1, SWD1 to SWD7,	Ponds, marshes, lakes, bays, coastal inlets, and watercourses. Sewage treatment ponds and storm water ponds **not** SWH Reservoir managed as a large wetland or pond/lake qualifies.	N	N/A	N/A
Shorebird Migratory Stopover Area	Shorebirds	Beaches, Dunes, Meadow Marshes: BBO1, BBO2, BBS1, BBS2 BBT1, BBT2, SDO1, SDS2, SDT1, MAM1 to MAM5	Shorelines of lakes, rivers and wetlands. Sewage treatment ponds and storm water ponds **not** SWH.	N	N/A	N/A
Raptor Wintering Area	Eagles, Hawks, Owls	Hawks/Owls - Combination of Forest and Cultural Ecosites: FOD, FOM, FOC, CUM, CUT, CUS, CUW Bald Eagle: Forest or swamp close to open water (hunting ground): FOD, FOM, FOC, SWD, SWM, SWC	Raptor wintering sites: >20ha, with a combination of forest and upland. Idle/Fallow/Meadow (>15ha) with adjacent woodlands. Eagle sites: open water, large trees and snags for roosting.	N	N/A	N/A
Bat Hibernacula	Big Brown Bat, Tri-coloured Bat	Caves, Crevices: CCR1, CCR2, CCA1, CCA2	Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. Buildings and active mine sites **not** SWH.	N	N/A	N/A
Bat Maternity Colonies	Big Brown Bat, Silver-haired Bat	Deciduous or mixed forests and swamps: FOD, FOM, SWD, SWM	Mature deciduous and mixed forest stands with >10/ha; large trees >25 cm DBH with cavities.	Y	N	Field investigation determined that the forested area north of the hydro corridor contains suitable cavity trees in sufficient density to be classified as Candidate SWH. The forested area south of the hydro corridor did not contain sufficient density to be classified as Candidate SWH.
Turtle Wintering Area	Turtles	SW, MA, OA, SA, FEO, BOO	Free water beneath ice. Soft mud substrate. Permanent water bodies, large wetlands, bogs, fens with adequate DO.	N	N/A	N/A
Reptile Hibernaculum	Snakes	Habitat may be found in any ecosite other than very wet ones. Five-lined Skink: FOD and FOM, FOC1, FOC3	Below frost line in burrows, rock crevices, rock piles or slopes, stone fences, abandoned stone foundations. Conifer or shrub swamps/swales, poor fens, depressions in bedrock with accumulations of sphagnum moss or sedge hummock ground cover. Skink: mixed forest with rock outcrop openings; granite bedrock with fissures.	N	N/A	N/A
Colonially-nesting Bird Breeding Habitat (Bank and Cliff)	Cliff Swallow, Northern Rough-winged Swallow	Eroding banks, sandy hills/piles, burrow pits, steep slopes, cliff faces, bridge abutments, silos, barns. CUM1, CUT1, CUS1, BLO1, BLS1, BLT1, CLO1, CLS1, CLT1	Exposed soil banks, **not** a licensed/permitted aggregate area. Does **not** include man-made structures (bridges or buildings), or recently (2 yrs) disturbed soil areas (berms, embankments, soil/aggregate stockpiles).	N	N/A	N/A
Colonially-nesting Bird Breeding Habitat (Tree/Shrubs)	Great Blue Heron, Black-crowned Night Heron, Great Egret, Green Heron	SWM2, SWM3, SWM5, SWM6, SWD1 to SWD7, FET1	Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and emergents may be used. Nests in trees are 11 to 15 m from ground, near top of the tree.	N	N/A	N/A
Colonially-nesting Bird Breeding Habitat (Ground)	Herring Gull, Great Black-backed Gull, Little Gull, Ring-billed Gull, Common Tern, Caspian Tern, Brewer's Blackbird	Rocky island or peninsula in lake or river. Close to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). MAM1 – 6; MAS1 – 3; CUM, CUT, CUS	Gulls and terns nesting on islands or peninsulas with open water or marshy areas. Brewers Blackbird colonies are found on the ground in low bushes close to streams and irrigation ditches within farmlands.	N	N/A	N/A
Migratory Butterfly Stopover Area	Painted Lady, Red Admiral, **Special Concern:** Monarch	Combination of open and forested ecosites (need one from each). Field: CUM, CUT, CUS Forest: FOC, FOD, FOM, CUP	Minimum of 10 ha, located within 5 km of Lake Ontario. Combination of field and forest, undisturbed sites, with flowering species (preferred nectar plants).	N	N/A	N/A
Landbird Migratory Stopover Areas	All migratory songbirds. All migrant raptor species.	FOC, FOM, FOD, SWC, SWM, SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. If multiple woodlands are located along the shoreline, those Woodlands <2km from Lake Ontario are more significant. Include a variety of habitats; forest, grassland and wetlands.	N	N/A	N/A
Deer Yarding Areas	White-tailed Deer	FOM, FOC, SWM, SWC, CUP2, CUP3, FOD3, CUT	Stratum I: core deer yard - coniferous forest; 60% canopy cover with pine, hemlock, cedar, spruce. Stratum II: mixed or deciduous forest with plenty of browse available, may include agricultural areas.	N	N/A	N/A
Deer Wintering Congregation Areas	White-tailed Deer	FOC, FOM, FOD, SWC, SWM, SWD	When movement is not constrained by snow depth (20cm) Woodlots > 100 ha and used annually.	N	N/A	N/A

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH (Y/N)	Confirmed SWH (Y/N)	Additional Notes
Rare Vegetation Communities						
Cliffs and Talus Slopes		TAO, TAS, CLO, CLS, TAT, CLT	Cliff: near vertical bedrock >3m in height; Talus Slope: coarse rock rubble at the base of a cliff	N	N	N/A
Sand Barren		SBO1, SBS1, SBT1	Sand Barrens >0.5 ha. Vegetation can vary from patchy and barren to continuous meadow, thicket--like, or tree covered (less than 60%). Less than 50% vegetation cover are exotic species.	N	N	N/A
Alvar	*Indicator species: Carex crawei, Panicum philadelphicum, Eleocharis compressa, Scutellaria parvula, Trichostema brachiatum,* Loggerhead Shrike	ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2	Alvar >0.5 ha. Level, mostly unfractured calcareous bedrock with mosaic or rock pavements and bedrock overlain with thin veneer of soil. Vegetation cover varies from patchy to barren with <60% tree cover.	N	N	N/A
Old Growth Forest		FOD, FOC, FOM, SWD, SWC, SWM	Woodland areas 30 ha or greater or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.	N	N	N/A
Savannah		TPS1, TPS2, TPW1, TPW2, CUS2	No minimum size; A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60% with less than 50% cover of exotic species. Remnant sites (railway right-of-ways) are **not** SWH.	N	N	N/A
Tallgrass Prairie		TPO1, TPO2	No minimum size; An open Tallgrass Prairie habitat has < 25% tree cover. Less than 50% cover of exotic species. Remnant sites (railway right-of-ways) are not SWH.	N	N	N/A
Other Rare Vegetation Communities		Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps. Review Appendix M	N	N	N/A
Specialized Habitat for Wildlife						
Waterfowl Nesting Area	Ducks	Upland habitats adjacent to: MAS1 to MAS3, SAS1, SAM1, SAF1, MAM1 to MAM6, SWT1, SWT2, SWD1 to SWD4	Extends 120 m from a wetland or wetland complex. Upland areas should be at least 120 m wide. Wood Ducks and Hooded Mergansers use cavity trees (>40cm dbh) in woodlands.	Y	TBD	The forsted area of the Site contains multiple small vernal pools (<0.5 ha) within 120 m of each other. A pair of wood ducks was observed in this area in April, 2021. The Candidate SWH extends 120 m from the wetland features. Field studies are ongoing in the spring of 2022 to confirm SWH status.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Osprey, Bald Eagle	FOD, FOM, FOC, SWD, SWM, SWC directly adjacent to riparian areas	Nesting areas are associated with waterbodies along forested shorelines, islands, or on structures over water.	N	N/A	N/A
Woodland Raptor Nesting Habitat	Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Barred Owl, Broad-winged Hawk	All forested ELC ecosites. Forests, swamps, and conifer plantations: FOD, FOM, FOC, SWD, SWM, SWC, CUP3	Natural or conifer plantation woodland/forest stands >30 ha with > 10 ha interior habitat. Stick nests.	N	N/A	N/A
Turtle Nesting Areas	Midland Painted Turtle, Snapping Turtle, Northern Map Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within: MAS1 to MAS3, SAS1, SAM1, SAF1, BOO1	Nest sites close to water, within open sunny areas with soil suitable for digging. Sand and gravel beaches. Nesting areas on sides of roads are not SWH.	N	N/A	N/A
Seeps and Springs	Wild Turkey, Ruffed Grouse, Spruce Grouse, White-tailed Deer, Salamander spp.	Seeps/Springs are areas where ground water comes to the surface.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream/river system.	N	N/A	N/A
Amphibian Breeding Habitat (Woodland)	Woodland Frogs and Salamanders	FOC, FOM, FOD, SWC, SWM, SWD	Wetland, pond or woodland pool of >500 m^2 within or adjacent (within 120m) to wooded areas (no min. size). Woodlands with permanent ponds or those containing water until mid-July are preferred.	Y	N	Amphibian Breeding Surveys determined that while some of the indicator species were recorded, only one species (Spring Peeper) was documented with Call Code Level 3. The criteria states that two or more of the inidicator species need to be recorded with Call Code level 3 to be considered signficiant wildlife habitat.
Amphibian Breeding Habitat (Wetlands)	Toads, Frogs, and Salamanders	SW, MA, FE, BO, OA and SA. Typically isolated (>120m) from woodland ecosites, however larger wetlands may be adjacent to woodlands.	Wetlands >500m^2 isolated from woodland ecosites with high species diversity. Permanent water bodies with abundant vegetation for bullfrogs.	Y	N	Amphibian Breeding Surveys determined that while some of the indicator species were recorded, only one species (Spring Peeper) was documented with Call Code Level 3. The criteria states that two or more of the inidicator species need to be recorded with Call Code level 3 to be considered signficiant wildlife habitat.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH (Y/N)	Confirmed SWH (Y/N)	Additional Notes
Woodland Area-Sensitive Bird Breeding Habitat	Birds: Yellow-bellied Sapsucker Red-breasted Nuthatch, Veery, Blue-headed Vireo, Northern Parula, Black-throated Green Warbler, Blackburnian Warbler, Black-throated Blue Warbler, Ovenbird, Scarlet Tanager, Winter Wren, Special Concern: Cerulean Warbler Canada Warbler	FOC, FOM, FOD, SWC, SWM, SWD	Large mature (>60 years) forest stands or woodlots > 30 ha. Interior forest habitat of >200 m from forest edge.	Y	N	Breeding Bird Surveys determined that while some of the indicator species were present, only one of the indicator species was documented with probable breeding evidence at BBS2 and BBS 3 (Veery and Black-throated Blue Warbler, respectively). To be classified as SWH three indicator species need to be recorded with probable breeding evidence.
Habitat of Species of Conservation Concern						
Marsh Bird Breeding Habitat	American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Marsh Wren, Sedge Wren, Common Loon, Sandhill Crane, Green Heron, Trumpeter Swan	MAM1 to MAM6, SAS1, SAM1, SAF1, FEO1, BOO1 For Green Heron: SW, MA and CUM1 sites.	Wetlands with shallow water and emergent aquatic vegetation.	N	N/A	N/A
Open Country Bird Breeding Habitat	Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, Northern Harrier, Savannah Sparrow, Short-eared Owl	CUM1, CUM2	Grassland/meadow >30 ha. Not being actively used for farming. Habitat established for 5 years or more.	N	N/A	No qualifying vegetation communities of sufficient size on or adjacent to Site.
Shrub/Early Successional Bird Breeding Habitat	Brown Thrasher, Clay-coloured Sparrow, Field Sparrow, Black-billed Cuckoo, Eastern Towhee, Willow Flycatcher, Yellow-breasted Chat, Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2	Large field areas succeeding to shrub and thicket habitats > 10 ha. Areas not actively used for farming in the last 5 years.	N	N/A	No qualifying vegetation communities of sufficient size on or adjacent to Site.
Terrestrial Crayfish	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish; (*Cambarus Diogenes*)	MAM1 to MAM6, MAS1 to MAS3, SWD, SWT, SWM, CUM1 sites with inclusions of the aforementioned.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish	N	N/A	N/A
Special Concern and Rare Wildlife Species	Any species of concern or rare wildlife species (S1-S3, SH) plant and animal.	Any ELC code.	Presence of species of concern or rare wildlife species identified within 1 or 10 km grid (NHIC).	N	N/A	Breeding Bird Surveys did not confirm probable or confirmed breeding evidence for any species of special concern.

Appendix I

Species Of Conservation Concern Screening

APPENDIX: Species at Risk Screening - County of Northumberland

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).	No	Known to occur in the general area	No further consideration required
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).	Yes: on-site	Incidental observation on-site	Consideration required under the ESA
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).	Yes: on-site	Confirmed absent through targeted surveys	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).	No	Known to occur in the general area	No further consideration required
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
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 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	Confirmed absent through targeted surveys	No further consideration required
Evening Grosbeak	*Coccothraustes vespertinus*	No Status	SC	S4B	The Evening Grosbeak is a large songbird with a thick greenish bill. It is a social bird that is often found in flocks, particularly during the winter months. Their preferred habitat is thick coniferous forest. During their breeding season, they are generally found in open, mature mixed forests dominated by Firs, White Spruce, or Trembling Aspen (1).	No	Known to occur in the general area	No further consideration required
Golden Winged Warbler	*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
King Rail	*Rallus elegans*	END	END	S2B	The King Rail is a large bird, standing at around 40 cm tall, with a long, curved bill, orange chest and neck, and black sides with vertical white bars. This species prefers densely vegetated freshwater marshes with open shallow water and shrub thicket areas. Current records for Ontario suggest that these birds prefer sites within coastal marshes of the Great Lakes. Most breeding pairs left in Ontario are found in wetlands bordering Lake St Clair or coastal marshes along Lakes Erie and Ontario (1).	No	Known to occur in the general area	No further consideration required
Least Bittern	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
Louisiana Waterthrush	*Parkesia motacilla*	SC	THR	S3B	The Louisiana Waterthrush is a large wood warbler with brown upper parts, cream-coloured breasts and flanks with dark streaks, and a long bill. It is typically found along fast moving streams and creeks, in deeply forested ravines. It nests along stream banks, in the roots of fallen trees, and under logs and other large woody debris. Although less frequently, the Louisiana Waterthrush has been known to inhabit heavily wooded, deciduous swamps and open water areas, In Ontario, its breeding ground is mostly found in woodlands along Lake Erie and along the Niagara Escarpment (1).	No	Known to occur in the general area	No further consideration required
Northern Bobwhite	*Colinus virginianus*	END	END	S1	The Northern Bobwhite, a small quail, has a round body and stubby tail. They have a head pattern described as a bright white eyebrow and throat patch divided by a black mask. This species is found in open grasslands, meadows, abandoned farmlands and savannahs throughout the year, occasionally foraging in forested areas during harsh winter conditions (1). They require an early successional habitat although in Ontario, they are now usually associated with cultivated lands (2).	No	Known to occur in the general area	No further consideration required

APPENDIX: Species at Risk Screening - County of Northumberland

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	Provincial S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
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
Piping plover	*Charadrius melodus*	END	END	S1B	The Piping Plover is a small shorebird with light colouring, a stubby orange bill and orange legs. This species almost exclusively nests on dry sandy or gravelly beaches above the high-water mark to avoid waves. It can be found pecking the sand, searching for small pools of water for insects and small crustaceans to consume. Although not particularly common in Ontario, it is found along the shores of the Great Lakes, and in the Lake of the Woods in northwestern Ontario (1).	No	Known to occur in the general area	No further consideration required
Red-headed Woodpecker	*Melanerpes erythrocephalus*	THR	SC	S4B	The Red-headed Woodpecker is a mid-sized bird, at around 20 cm long, with a vivid red head, neck and breast as well a strong bill. The species can be found in open woodland and woodland edges, often near man-made landscapes such as parks, golf courses and cemeteries. These areas must contain a large number of dead trees for perching and nesting (1).	No	Known to occur in the general area	No further consideration required
Short-eared owl	*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 agricultural fields (1). The main factor influencing their choice in habitat is believed to be an abundance of their food source, primarily rodents and other small mammals (2).	No	Known to occur in the general area	No further consideration required
Wood Thrush	*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: on-site	Confirmed absent through targeted surveys	No further consideration required
Yellow Rail	*Coturnicops noveboracensis*	SC	SC	S4B	The Yellow Rail is a small, quail-like marsh bird with a short yellow or black bill, short tail, with yellowish and black streaks on its back and white wing patches. This species is mainly found in the Hudson Bay Lowlands region, and is only found in localized marshes in southern Ontario. It is a secretive bird that lives deep within the reeds, sedges, and marshes of shallow wetlands which nest on the ground in areas that have an overlying mat of dry vegetation that can be used for nest building (1).	No	Known to occur in the general area	No further consideration required
Fish								
American Eel	*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
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
Herptiles								
Blanding's Turtle	*Emydoidea blandingii*	THR	THR	S3	Blanding's Turtles are identifiable by their bright yellow throat and chin and domed shell. They spend the majority of their life cycle in the aquatic environment, usually in large wetlands or shallow lakes with high densities of water plants (1). These turtles prefer shallow, nutrient rich water with organic sediment and dense vegetation. They use terrestrial sites for travel between habitat patches and to lay clutches of eggs, often going hundreds of meters from their nearest water body. Blanding's Turtles nest in dry coniferous and mixed forest habitats, as well as fields and roadsides (2). From late October until the end of April, they hibernate in the mud at the bottom of permanent water bodies (1).	No	Known to occur in the general area	No further consideration required
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).	No	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).	No	Known to occur in the general area	No further consideration required
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: on-site and adjacent lands	Known to occur in the general area	Potential significant wildlife habitat on-site
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).	No	Known to occur in the general area	No further consideration required

APPENDIX: Species at Risk Screening - County of Northumberland

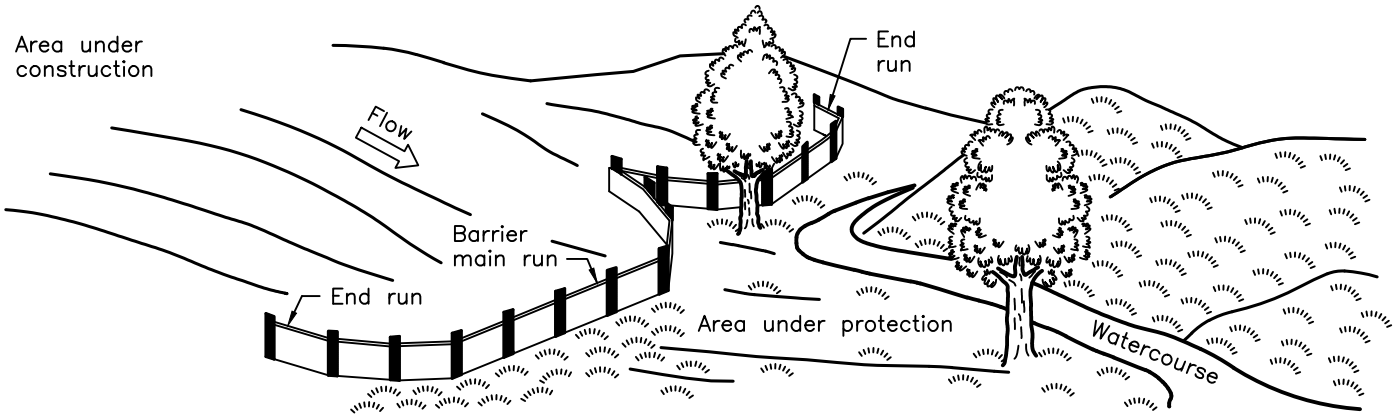
COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	Provincial S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Eastern Milksnake	*Lampropeltis triangulum*	SC	NAR	S4	The Eastern Milksnake's colouration is grey or tan with reddish alternating blotches 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	Known to occur in the general area	Consideration required under local/regional conservation objectives
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
Gray Ratsnake (Great Lakes/ St. Lawrence population)	*Pantherophis spiloides*	THR	THR	S3	The Gray Ratsnake, which can grow to 2.5 m in length, is black with faint patterning and a white checkerboard patterned belly (5). The Great Lakes/St. Lawrence population uses a variety of habitat types including deciduous forests, wetlands, agricultural fields and rocky outcrops that provide suitable sites for sunning and winter hibernation below ground (1). They may spend the summer in more open areas such as old fields and meadows (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: on-site	Confirmed absent through targeted surveys	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
West Virginia White	*Pieris virginiensis*	No Status	SC	S3	The West Viginia White is a small, dingy white butterfly. This species is found in moist deciduous woods, and requires a supply of toothwort, a small, spring-blooming plant, which provides the only source of food for its larvae. The West Virginia White is found mostly in the central and southern parts of Ontario, but its range extends north to Manitoulin and St. Joseph islands (1).	No	Known to occur in the general area	No further consideration required
Mammals								
Tri-colored Bat	*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	Potential habitat for endangered or threatened species on-site
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	Potential habitat for endangered or threatened species on-site
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	Potential habitat for endangered or threatened species on-site
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
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
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).	Yes: on-site and adjacent lands	Confirmed absent through targeted surveys	No further consideration required
Eastern Prairie Fringed orchid	*Platanthera leucophaea*	END	END	S2	The Eastern Prairie Fringed-Orchid has distinctive fringed white flowers with a deep "nectar spur" containing nectar and a flat, fringed "lip" serving as a platform for pollinating insects. It may lie dormant for years before flowering. It can be found in areas of tallgrass prairie or fen throughout the province and in some tamarack swamps of the Bruce Peninsula and Ottawa Area (1).	No	Known to occur in the general area	No further consideration required

References

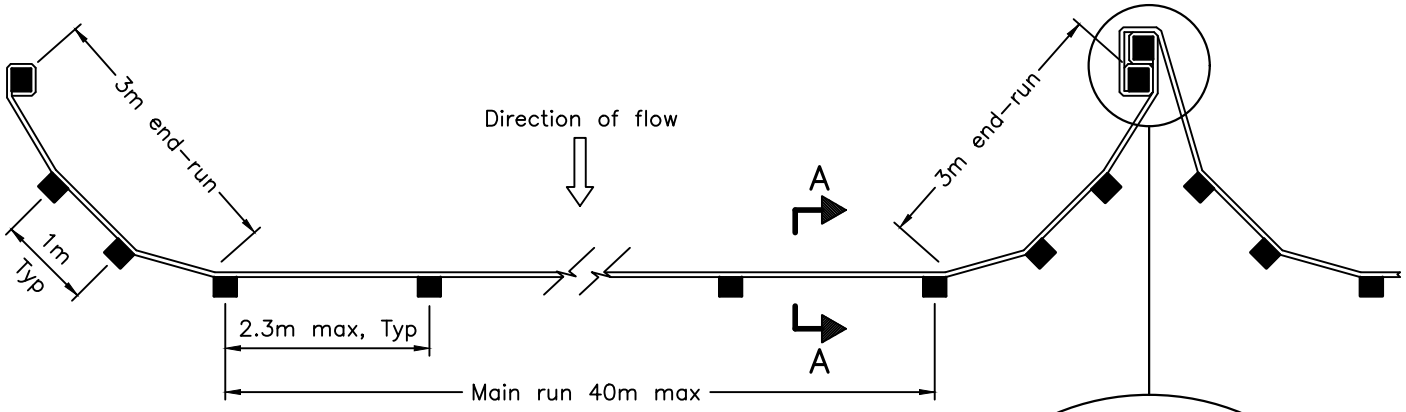
1. Ministry of Environment, Conservation and parks. (2019). Species at risk in Ontario. Retrieved from https://www.ontario.ca/page/species-risk-ontario
2. Government of Canada. (2019). Species at risk public registry. Retrieved from https://species-registry.canada.ca/index-en.html#/species?ranges=5&sortBy=commonNameSort&sortDirection=asc&pageSize=10
3. Committee on the Status of Endangered Wildlife in Canada. (2008).
4. Environment Canada. (2018).
5. Ontario Nature. (2020). Reptiles and amphibians. Retrieved from https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/species/
6. University of Michigan Museum of Zoology. (2004).

Appendix J

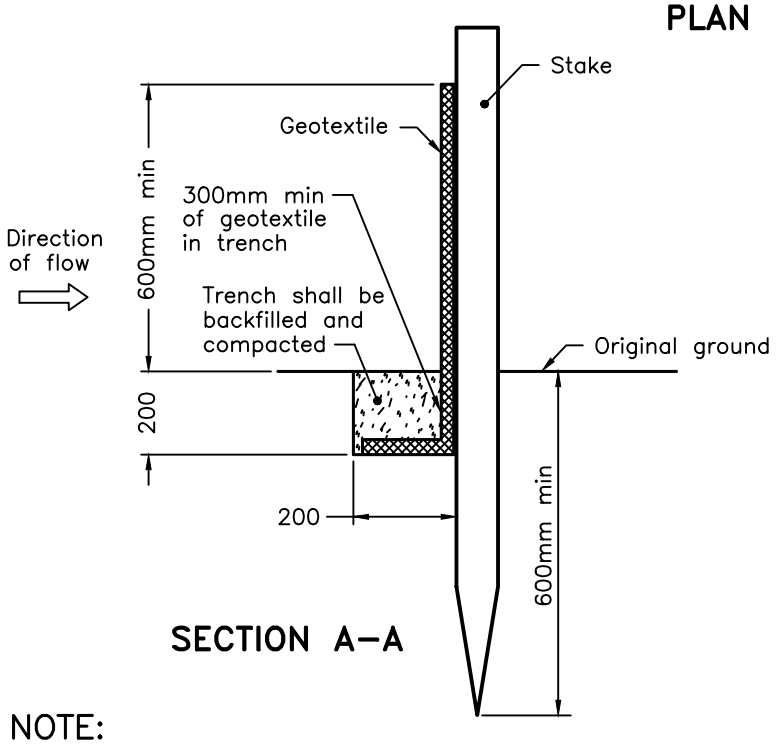
Ontario Provincial Standard Drawings



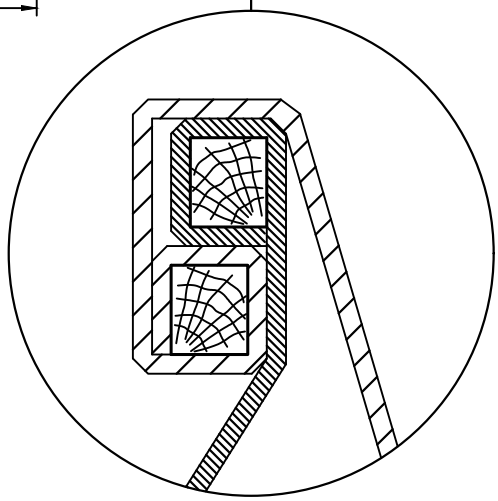
PERSPECTIVE VIEW



PLAN



SECTION A–A

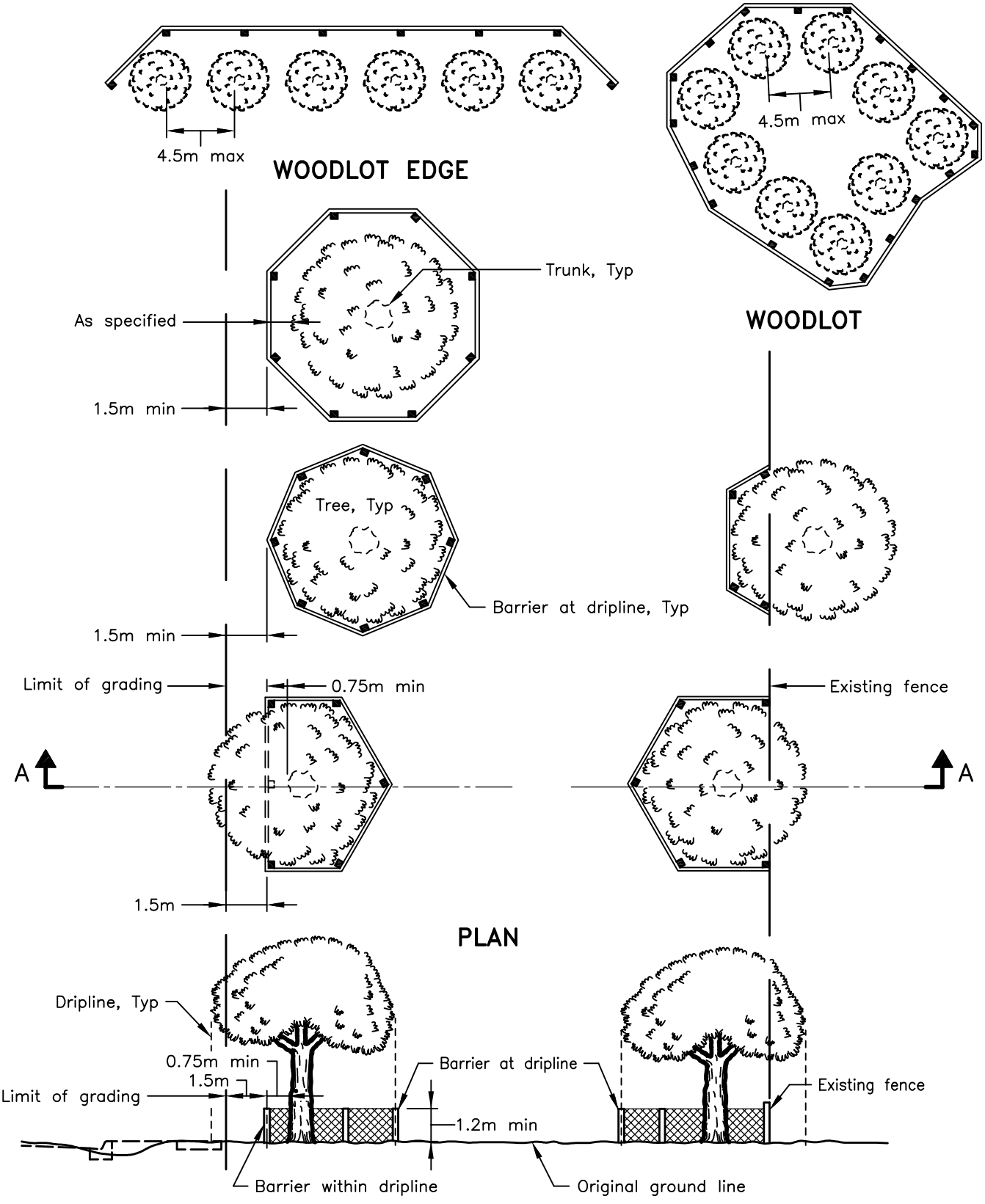


JOINT DETAIL

NOTE:

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev	3
LIGHT–DUTY SILT FENCE BARRIER			
	OPSD 219.110		



SECTION A–A

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev	1
BARRIER FOR TREE PROTECTION			
	OPSD 220.010		