Environmental Impact Study - Part Lot 19, Concession 19, Municipality of Trent Lakes, County of Peterborough

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Prepared for:
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Executive Summary

The proposed development is approximately 47.96 ha in size and is composed of 59 lots, three open space blocks, and associated supporting road infrastructure. Ecologically, the Site was composed of agricultural fields, wetlands, woodlands, thickets, and cultural meadows. A Draft Plan of subdivision is being pursued under two phases (herein referred to as Phases 1 and 2). To align the project phasing, we also understand the client is seeking a settlement area boundary expansion along with the Draft Plan Application.

The County of Peterborough Official Plan does not identify or delineate Significant Woodlands within its jurisdictional boundaries. Since significant woodlands have not been thoroughly studied or mapped in the County, development in or adjacent to woodlands was evaluated based on industry standards. The woodlands on Site were evaluated as not significant, as they do not meet the 50 ha minimum threshold of contiguous woodland on the landscape.

Three wetlands were identified and delineated on Site. Of these, two are proposed for removal (Wetlands 2 and 3). Wetland 3 is 1.2 ha in size and wholly located within the Phase 1 lands. It is dominated by the non-native Reed Canary Grass and was not characterized as Significant Wildlife Habitat (SWH). As such, removal can be completed in conformity with the PPS and applicable policies in the *Planning Act* framework. To mitigate impacts on the landscape, two areas of proposed buffer enhancement have been identified within the Phase 1 lands, totalling 1.9 ha. Wetland 2 is 3.2 ha in size and located in the northwest corner of the Phase 2 lands. Further investigations are recommended to confirm if the complex should be considered SWH, and if so, what communities within the complex provide significant function. Pending survey results, enhancement opportunities exist along the Wetland 1 corridor which can be pursued to mitigate impacts on the landscape. Additional details, including sensitivity evaluation, recommended mitigation, and on-site enhancement initiatives, are provided in Section 4.4 and 5.1.

Guidance documents produced by the MNRF for the identification and evaluation of Significant Wildlife Habitat (SWH) were used to identify and confirm occurrences of SWH on the Site (MNR, 2000). One feature (Pond 5) was identified as a *Seasonal Concentration Area of Animals*: *Turtle Wintering Area*. Recommendations and mitigation to avoid negative impacts to SWH habitat is provided in Section 5.2.

No fish habitat is present on Site however, one intermittent watercourse (Watercourse 1), was documented at the eastern extent of the Site. Provided the recommendations outlined in Section 5.3 and 7.0 are implemented, no impacts to the form or function of the feature is anticipated. No significant Life Science or Earth Science ANSIs are located on or within 120 m of the Site. No significant valleylands are found on or within 120 m of the Site.

A series of targeted Species at Risk (SAR) surveys were undertaken at the Site. In total, two SAR were identified: Little Brown Myotis and Eastern Meadowlark. It has been communicated to Cambium that all efforts are being made to minimize vegetation clearing to extent feasible in order to retain the natural character of the landscape within the development area. As such, potential impacts to Little Brown Myotis can be mitigated and be in alignment with guidance from MECP, provided the recommendations in 5.4 and 7.0 are implemented. Regarding Eastern Meadowlark, the proposed development is subject to a regulatory exemption under Section 13 of O. Reg. 830/21 (Eastern Meadowlark), whereby the client can register the proposed activity and avoid permit requirements. Additional details are provided in Section 5.4.1.

Within the report, it has been demonstrated that the proposed development can be completed in conformity with applicable provincial policies, provided the mitigation and recommendations outlined herein are implemented. A summary of applicable policies and conformity considerations is provided Section 6.0. A comprehensive list of recommended mitigation and best management practices is provided in Section 7.0.

1.0 Introduction

Cambium Inc. (Cambium) was retained by Jeffery Homes (Client) to conduct an Environmental Impact Study at Part Lot 19, Concession 19, Municipality of Trent Lakes (previously known as Township of Galway-Cavendish and Harvey), County of Peterborough, Ontario (Figure 1). We understand the clients is pursuing a Draft Plan Approval for two phases of lands (herein referred to as Phases 1 and 2) and that an EIS is required in support of a Subdivision Application. We also understand the client is seeking a settlement area boundary expansion along with the Draft Plan Application. Both the Phase 1 and 2 lands will be considered the Site for this report.

The following Environmental Impact Study (EIS; the Study) serves to address potential impacts to natural heritage features identified during the preliminary development review process, as required by the Provincial Policy Statement, 2020 (PPS). The Site contains or is adjacent to (within 120 m of) the following mapped natural heritage and/or hydrologic features: wetlands, watercourses, significant woodlands, candidate habitat for Species at Risk (SAR), candidate habitat for Significant Wildlife Habitat (SWH). The Site is within Ecoregion 6E of Ontario (Crins, Gray, Uhlig, & Wester, 2009). Phase 1 of the Site is currently within the Bobcaygeon settlement area boundary. A settlement area boundary expansion is to be submitted along with the Draft Plan application for the Phase 2 lands. For the purposes of this EIS, and associated policy framework evaluations, the entire Site will be considered in a settlement area.

The Site is within the jurisdiction of Kawartha Conservation Authority (KCA) and their regulated area overlaps the Site. The regulated area covers the wetlands in the center of Site and the watercourse on the northeast corner of the property. As the Site contains wetlands and/or watercourses, the Study will consider regulations on development as imposed by the local Conservation Authority's Regulation under the Conservation Authorities Act, 1990.

The Endangered Species Act, 2007 (ESA) protects endangered and threatened species and their habitats from harm or destruction. Habitat for endangered and threatened species is also afforded protection under provincial natural heritage policy; however, it is ultimately the proponent's responsibility to ensure that no harm to these species or their habitats occurs during their planned activities. This Study includes a habitat-based screening for species of

conservation concern to determine if the Site has suitable habitat for any provincially or federally listed species at risk (SAR).

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

1.1 Summary of Proposed Development

The Site is approximately 47.96 ha, predominantly undeveloped, and composed of agricultural fields, wetlands, woodlands, thickets, and cultural meadows. The Site currently contains a residential structure and associated barn in the southwest corner of the property. Adjacent lands include residential development to the south and east, and agriculture to the north and west. The proposed development consists of a residential subdivision and associated road network. A Draft Site Plan is provided in Appendix A.

2.0 Natural Heritage Policy Context

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

- Provincial Policy Statement (PPS), 2020
- County of Peterborough Official Plan, 1994
- The Official Plan of the Township of Galway-Cavendish and Harvey, 2013
- Municipality of Trent Lakes Zoning By-law, 2014
- *Conservation Authorities Act, 1990*
- *Endangered Species Act* (ESA), 2007
- *Fisheries Act*, 2019
- *Species at Risk Act* (SARA), 2002
- *Migratory Birds Convention Act* (MBCA), 1994
- *Invasive Species Act*, 2015

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

2.1 Provincial Policy Statement, 2020

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

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

- habitat of endangered and threatened species

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

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

2.2 Conservation Authority Regulation

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

watercourses, hazard lands, wetlands, river or stream valleys, and the nearshore areas of the Great Lakes, St. Lawrence River, and applicable inland lakes.

2.3 Official Plan and Zoning By-Law

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

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

Source	Designation / Zoning
County of Peterborough Official Plan	Phase 1 Lands: Rural Settlement and Natural Core Area Phase 2 Lands: Rural and Natural Core Area
Municipality of Trent Lakes Official Plan	Phase 1 Lands: Development Phase 2 Lands: Rural
Municipality of Trent Lakes Zoning By-law	Phase 1 Lands: Development Phase 2 Lands: Rural

The Phase 1 lands are within the designated Bobcaygeon settlement area boundary. The Phase 2 lands are currently outside the settlement area and zoned Rural. However, it is our understanding that the Client is pursuing a settlement area boundary expansion to include the Phase 2 lands within the settlement area. As such, for the purposes of this EIS, both phases of land (i.e., Phase 1 and Phase 2) will be considered part of the settlement area and collectively considered the Site herein. A summary of conformity with the relevant policies is included in Section 6.0.

2.4 Endangered Species Act, 2007

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

designation of their habitat as significant wildlife habitat (SWH), a provincially protected natural heritage feature. Species at risk (SAR) are discussed throughout this report, as applicable.

2.5 Fisheries Act

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

As a result of amendments to the federal Fisheries Act in 2019, projects near water that could potentially impact fish or fish habitat may require DFO review. The primary purpose of the review is to determine whether HADD of fish habitat, as defined by the Act, can be avoided. The DFO Fisheries Protection Program provides a Decision Framework and guidance material applicable to these reviews (available on-line at www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html).

2.6 Species at Risk Act

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

2.7 Migratory Birds Convention Act, 1994

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

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

3.0 Technical Approach and Data Collection Methods

3.1 Background Information Review

Supporting background information pertaining to the Site and surrounding landscape was compiled and reviewed, as part of a comprehensive desktop exercise, to better understand local biophysical conditions. Data was obtained from provincial, municipal, and other online resources to provide context to the development proposal, and to guide development of the site-specific work program. Field studies were subsequently conducted to verify and/or add detail to the high-level contextual information derived from these publicly available resources.

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

- Land Information Ontario (LIO) database via the online Natural Heritage Areas: Make-a-Map tool (Ministry of Natural Resources and Forestry, 2023)
- Natural Heritage Information Center (NHIC) database: Species At Risk (SAR) occurrence records
- Online Atlas Data:
    - Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature, 2018)
    - Ontario Breeding Birds Atlas (OBBA) (2001-2005) (Bird Studies Canada, 2005)+
- County of Peterborough Official Plan (1994)
- Municipality of Trent Lakes Official Plan (2013)
- Municipality of Trent Lakes Zoning By-law (2014)
- Kawartha Conservation Authority regulated area mapping (2023)
- An Environmental Impact Assessment For the 1919 Estates Subdivision Consisting of Twenty-two Hamlet Residential Estate Lots & Three Blocks Part Lot 19, Concession 19, Geographic Township of Harvey, Now in the Municipality of Trent Lakes, County of Peterborough (Jp2g Consultants Inc., 2018)
- Aquatic Species at Risk distribution maps (Fisheries and Oceans Canada, 2023)

- Aquatic Resource Area Summary Data (Government of Ontario, 2022)
- Fish ON-Line (Ministry of Natural Resources and Forestry, 2022)

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

Table 2 Background Review Summary

Source	Location Reference	Relevant Records
LIO Geographic Database	Site and 120 m adjacent lands	Unevaluated wetlands Woodlands
NHIC Database	17PK9437 17PK9537 17PK9538	Eastern Whip-poo-will – THR Eastern Meadowlark – THR Bobolink - THR Snapping Turtle – SC
Ontario Breeding Bird Atlas (OBBA)	17TPK93	Incorporated into list of species within Appendix B
Ontario Reptile and Amphibian Atlas (ORAA)	17PK93	Incorporated into list of species within Appendix B
Aquatic SAR distribution maps	Site and 120 m adjacent lands	No aquatic SAR within 120 m

Note: THR = Threatened species on SARO list
END = Endangered species on SARO list
SC = Special concern species on SARO list
The species of conservation concern screening provided in Appendix B includes a list of all species within the overlapping OBBA and ORAA squares with potential policy implications.

3.2 Field Investigations

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

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

3.2.1 Ecological Land Classification and Vegetation Inventory

The Ecological Land Classification (ELC) System for Southern Ontario (Lee, et al., 1998) was used to classify vegetation communities on the Site. Definitions of vegetation types are derived from the ELC for Southern Ontario First Approximation Field Guide (Lee, et al., 1998) and the revised 2008 tables. ELC units were initially delineated and classified by orthoimagery interpretation. Field investigations served to confirm the type and extent of ELC communities on the Site through vegetation inventory, and soil assessment with a hand auger where vegetation types could not be classified based on vegetation alone. Where vegetation communities extended off the Site, classification was done through observation from property boundaries and publicly accessible lands.

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

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

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

3.2.2 Wetland Boundary Delineation

In Ontario, wetlands are mapped and evaluated under the Ontario Wetland Evaluation System (OWES). Mapped evaluated wetlands have undergone extensive study and been assessed based on their form and function under four categories: Biological, Social, Hydrological, and Special Features (Ministry of Natural Resources, 2022). Evaluated wetlands that score high enough are deemed Provincially Significant Wetlands (PSW). Evaluated wetlands that did not score high enough to be a PSW are called Locally Significant Wetlands (LSW). The province also maps unevaluated wetlands. These mapped wetlands are approximate; as such, they require field verification in order to confirm their presence and determine their boundaries.

The subject wetland was delineated following provincially approved methods outlined in the Ontario Wetland Evaluation System: Southern Manual, 4th Ed. (Ministry of Natural Resources, 2022). Fieldwork was carried out by provincially certified Cambium staff. Wetland boundaries were initially delineated and classified by orthoimagery interpretation. The presence/absence of wetlands on the Site was confirmed through field investigations during the growing season (late May through October). Wetland boundaries were determined using the 50% wetland vegetation rule. Where vegetation-based delineation was inconclusive, soil assessment with a hand auger was used to confirm wetland boundaries. Wetland boundaries on the Site were marked with a hand-held GPS unit. Where wetland communities extend off the Site,

classification was done through observation from property boundaries and publicly accessible lands.

3.2.3 Aquatic Habitat Assessments

Aquatic habitat surveys were completed to identify and map all aquatic features on Site, including waterbodies, watercourses (permanent and intermittent), seeps, springs, and overland drainage paths. Aerial photography and topographical mapping sources were reviewed to identify hydrologically connected aquatic features on adjacent lands that were inaccessible during the field assessments. On-site features were characterized based on in-stream and riparian cover, channel structure/morphology, substrates, flow, and hydrologic characteristics, as well as general documentation of channel instability, erosion/sedimentation, groundwater, and flow permanency indicators. If present, crossing features including bridges, culverts, and bed-level crossings were noted and georeferenced in the field. Standard assessment methods and technical criteria referenced in the Ontario Stream Assessment Protocol (Ministry of Natural Resources and Forestry, 2017) were applied to wadeable streams. All identified aquatic features were assessed to determine their potential function as fish habitat, with particular consideration to sensitive, limiting, or critical habitat, such as spawning locations, overwintering habitat, and migratory corridors. Fish observations, habitat connectivity, and barriers to fish movement were documented, when present, to provide regional context to their function within the general aquatic network and sub-watershed.

3.2.4 Fish Community Sampling

Sampling methodologies for determining the presence, abundance, and distribution of fish within aquatic habitats vary depending on study objectives, habitat conditions, and target species. For all aquatic habitat sampling, Cambium employs sampling techniques in alignment with industry standards, based on guidance provided by applicable government agencies and ministries, and in accordance with manufacturers instructions for field equipment usage. All aquatic sampling is carried out by qualified Cambium staff, under the supervision of a qualified aquatic biologist.

3.2.5 Breeding Bird Surveys

Two breeding bird surveys were carried out during the peak breeding season between May 24 and July 10, a minimum of seven days apart. Point counts were completed using the Ontario Breeding Bird Atlas (OBBA) Guide for Participants (Ontario Breeding Bird Atlas, 2001). Point count stations were established in various habitat types and were combined with incidental observations to determine the presence, variety, abundance, and breeding evidence of species. 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. Surveys conducted outside of this five hour window remain valid, provided that the protocol adjustment is documented and justifiable. All species observations (visual and auditory) were recorded at predetermined point count stations during a five minute period. Observations were also documented between point count stations and were tabulated with the nearest station. 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. A description of breeding evidence classes is included in Table 4.

Table 4 OBBA Breeding Evidence Codes and Classes

Code	Description
CONFIRMED	
NB	Nest-building or excavation of nest hole by a species other than a wren or a woodpecker
DD	Distraction display or injury feigning
NU	Used nest or egg shells found (occupied or laid within the period of the survey)
FY	Recently fledged young (nidicolous species) or downy young (nidifugous species) incapable of sustained flight
AE	Adult leaving or entering nest site in circumstances indicating occupied nest
FS	Adult carrying fecal sac
CF	Adult carrying food for young
NE	Nest containing eggs
NY	Nest with young seen or heard
PROBABLE	
M	At least 7 individuals singing or producing other sounds associated with breeding (e.g., calls or drumming), heard during the same visit to a single square and in suitable nesting habitat during the species' breeding season.

Code	Description
P	Pair observed in suitable nesting habitat in nesting season
T	Permanent territory presumed through registration of territorial song, or the occurrence of an adult bird, at the same place, in breeding habitat, on at least two days a week or more apart, during its breeding season. Use discretion when using this code. “T” is not to be used for colonial birds, or species that might forage or loaf a long distance from their nesting site e.g., Kingfisher, Turkey Vulture, and male waterfowl
D	Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation
V	Visiting probable nest site
A	Agitated behaviour or anxiety calls of an adult
B	Brood Patch on adult female or cloacal protuberance on adult male
N	Nest-building or excavation of nest hole, by a wren or a woodpecker
POSSIBLE	
H	Species observed in its breeding season in suitable nesting habitat
S	Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season
OBSERVED	
X	Species observed in its breeding season (no breeding evidence)

Source: Ontario Breeding Bird Atlas: Instructions for General Atlassing (Birds Canada, April 2021)

The Natural Heritage Information Center (NHIC) database and Species at Risk in Ontario (SARO) list were reviewed to determine the current provincial status for each bird species.

3.2.6 Grassland Bird Surveys

Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*) are SAR listed as threatened on the SARO list. These species prefer natural grasslands and agricultural fields, including pasture, hayfields, and abandoned fields (CUM vegetation type under ELC), for breeding and nesting sites. One or both of these species have been recorded in the vicinity of the Site within recent years. Bobolink is an area sensitive species that requires a minimum area of 5 ha to support breeding habitat, with larger areas generally providing additional habitat benefits (Ministry of Natural Resources and Forestry, 2018). Eastern Meadowlark are not as strongly area sensitive; however, a minimum area of 5 ha is also required to support preferred breeding habitat (Ministry of Natural Resources and Forestry, 2018).

In order to determine if the Site is being used as nesting habitat by Bobolink or Eastern Meadowlark, avian surveys were conducted following the approved MNR protocol for Eastern Meadowlark (Ministry of Natural Resources and Forestry, 2018). This protocol is suitable for use with both of these species. This method involves recording Bobolink and Eastern Meadowlark observations via both point count location(s) and traveling transects between points. The protocol requires that the Site be visited three times between May 21 and July 3 (the nesting season for both of these species) with survey dates being evenly distributed within this period and conducted within 7-10 days of each other. Surveys are conducted between sunrise and four hours after sunrise when wind speed is low (<19 km/h; Beaufort Wind Scale of 3 or lower) and with light or no precipitation.

3.2.7 Eastern Whip-poor-will Surveys

The Eastern Whip-poor-will (Caprimulgus vociferus) typically found in areas with a mix of open and forested areas, such as patchy forests with clearings, forests that are regenerating after major disturbances, savannahs, open woodlands, or openings in more mature forests. In order to determine if the Site is being used as nesting habitat by Eastern Whip-poor-will, avian surveys were conducted following the MNRF protocol (Ministry of Natural Resources and Forestry, 2014), supplemented with timing recommendations provided in the Canadian Night Jar Survey Protocol (Birds Canada & Environment and Climate Change Canada, 2022). Surveys are to be conducted three times between May and July, centered around full moon cycles. One survey is to be conducted during the first full moon cycle (typically late May / early June) and two surveys conducted in the next full moon cycle (typically late June / early July). Since moon phase is known to affect calling rates, the moon should be greater than 50% illuminated above the horizon (generally one week prior to and following the full moon). Conditions should include nights with temperatures above 10°C, no precipitation, low noise levels, wind <19 km/h (Beaufort Wind Scale of 3 or lower), and clear skies. Points should be established 500 m apart, however based on habitat conditions (size and distribution within the site) this distance may need to be adjusted. All species observations (visual and auditory) are recorded during a five minute period. Observations should be recorded with the direction and approximate distance from the survey station.

3.2.8 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, in order 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. It should be noted that given the time of Cambiums retention, surveys were not completed in April.

3.2.9 Turtle Basking Surveys

Searching for basking turtles through a Visual Encounter Surveys (VES) is the most effective method of confirming the presence of turtles within suitable habitat. Conducting TBS in early spring under suitable conditions is a means of identifying turtle overwintering habitat by

documenting the locations of basking turtles soon after emergence from winter habitats. Turtles observed basking within two to three weeks of ice-off are likely in or near their overwintering habitat, which has implications for confirming significant wildlife habitat (SWH). TBS should occur after ice cover has melted and no later than June 15th.

According to the protocol, TBS should be conducted between 8 am and 5 pm during sunny periods when air temperature is above 5°C and is warmer than water temperature. Surveys can be carried out on partially cloudy or overcast days when air temperature is above 15˚C and is higher than water temperature. Surveys on the first sunny day after a series of cloudy or cool days are generally more productive than surveys conducted during several consecutive days of sunny weather (Ministry of Natural Resources and Forestry, 2015). Perimeter searches from the edge (using binoculars) can be conducted for open water wetlands, whereas area searches (using walking transects) should be conducted for densely vegetated shallow wetlands. Five surveys spread over at least three weeks are required at sites where this species has not been previously detected.

TBS were completed by searching target habitats by visually scanning the area from suitable vantage points, with subsequent searches of low visibility habitats by transect sweeps. Transects were offset from one another by 10 m, for 5 m of viewing on each side by each observer.

All turtle observations were documented by GPS and a description of physical attributes and behavior.

3.2.10 Bat Maternity Roost Surveys

To determine if suitable maternity roosting 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 deciduous or mixed treed forest or swamp ELC community types (i.e., FOD, FOM, SWD, SWM), 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 ≥10 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.

3.2.11 Bat Acoustic Monitoring

Bat acoustic monitoring surveys were completed to determine, with reasonable certainty, the bat species present in the immediate area of the Site. Bat species were identified using analysis of sonographic characteristics from recordings of ultrasonic calls emitted by bats for echolocation. Survey methods were developed based on the MNRF survey guidelines outlined in Bat and Bat Habitats: Guidelines for Wind Power Projects (2011) and current guidance provided by MNRF for surveying SAR bats in Ontario. Surveys were conducted using broadband bat detectors (Wildlife Acoustics Song Meters) appropriately placed in target habitats. Passive acoustic recorders were programmed to begin recording 30 minutes before sunset, extending to 30 minutes after sunrise. Surveys were carried out in the month of June for 10 consectutive nights. Data was processed using equipment specific software to identify bats to species, to the extent possible. All calls, including unidentifiable calls, are reported in the survey data. The NHIC database and SARO list were reviewed to determine the current provincial status for all bat species identified.

4.0 Characterization of Natural Features and Functions

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

A summary of the field investigations completed on the Site is presented in Table 5. Survey stations/areas are shown on Figure 2.

Table 5 Summary of Field Investigations

Date	Time On Site	Weather	Observer	Activities
2023-05-19	8:00-16:30	Temp:11.3-23.5°C Clear Wind:1 Noise:1	B. Hnatiw	Ecological Land Classification Wetland Boundary Delineation Vascular Plant Survey #1 Turtle Basking Survey#1
2023-05-25	9:00-11:00	Temp: 10-17°C Clear Wind: 0 Noise 0/2/3	C. Johnson	Turtle Basking Survey #2
2023-05-30	9:00-23:00	Temp: 18-22°C Clear Wind: 0 Noise:0/2	C. Johnson	Amphibian Calling Survey#1
2023-05-31	6:30-10:45	Temp:16-26°C Clear/Partly Cloudy Wind:0/1/2 Noise:0/1/2	K. Vizza	Grassland Breeding Bird Survey #1 Breeding Bird Survey #1 Turtle Basking Survey #3
2023-06-08	7:00-10:30	Temp: 12-16°C Clear/Partly Cloudy/Fog Wind:0/1 Noise:0/1/2	K. Vizza	Grassland Breeding Bird Survey #2 Turtle Basking Survey #4

Date	Time On Site	Weather	Observer	Activities
2023-06-15	7:00-10:15	Temp:12-16°C Clear/Partly Cloudy Wind:1/2/3 Noise:1/2/3	K. Vizza	Grassland Breeding Bird Survey #3 Breeding Bird Survey #2 Turtle Basking Survey #5
2023-06-01	12:00-14:00	25°C Partly Cloudy Wind:1 Noise:1	C. Johnson	Bat Acoustic Installation
2023-06-16	12:00-14:00	22°C Partly Cloudy Wind:1 Noise:1	C. Johnson	Bat Acoustic Move/Installation
2023-06-28	21:00-23:15	18°C Clear Wind:2 Noise:0/1/2	C. Johnson	Amphibian Calling Survey#2 Whip-poor-will Survey #2
2023-07-05	22:00-22:30	Temp: 20-21°C Clear Wind: 0 Noise:0	C. Johnson	Whip-poor-will Survey #3
2023-07-26	8:00-16:30	Temp: 23.4°C-31.9°C Clear Wind:0/1 Noise:1	B. Hnatiw C. Jeremy	Vascular Plant Survey #2 Bat Acoustic Removal Aquatic Habitat Assessment
2023-09-12	8:30-15:15	Temp: 14°C-19°C Cloudy/Drizzle Wind:1/2 Noise:0/1	B. Hnatiw	Vascular Plant Survey #3
2023-11-24	8:15-12:15	Temp: -7°C-(-1)°C Clear/Few Clouds Wind:2/3/4 Noise:0/1	B. Hnatiw	Bat Maternity Roost Survey

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

4.1 Landscape Position and Topography

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

Elevation on Site ranges from 280 to 310 masl. Generally, elevation is highest in the north and northwestern extent, and gently slopes in a south and southeast direction across the Site. It contains many rolling hills with low lying areas around the existing residence in southwest corner of Site, a wetland in the center, and overland drainage in the northeast corner (Figure 2).

4.1.1 Historical Land Use

A review of historical aerial imagery for the Site indicates it has been used for agricultural purposes and largely unchanged for decades. Changes to drainage conditions were noted on adjacent lands north of the Site in recent years.

4.2 Aquatic Habitat Assessment

Within the Site, no mapped watercourses, drainage features or fish habitat were identified in background review sources. However, KCA mapping identifies three areas of regulation associated with unevaluated wetlands on and immediate adjacent to the Site.

Through field investigation an intermittent watercourse, referred to as Watercourse 1 (Figure 2), was identified at the northeastern extent of the Site, adjacent to Moon Line Rd N. The feature was anthropogenically influenced and constrained in areas behind the existing

residential properties. Bed and banks were marginally defined and primarily composed of organic and detritus material. Coarse substrates, in the form of gravel, was documented in constrained areas and in reaches that have been straightened and experience higher velocity flow in spring. During the May visit, water depth ranged from 5 cm to 10 cm, but was dry in July. A License to Collect Fish for Scientific Purposes (LCFSP) was obtained to sample the feature, but it was dry throughout the approved survey period. The watercourse conveys flow south and southeast, discharging into the Moon Line Rd N ditch line. Despite being hydrologically constrained, scouring and bed definition was poor within the ditch and heavily inundated with vegetation. No cross-culverts were found under the road. Given the marginally defined bed and banks, limited areas of substrate sorting, and spring flow conveyance, the feature was characterized as an intermittent watercourse. Given its lack of connectivity to downstream habitat and unsuitable overwintering potential, it was not characterized as seasonal or permanent fish habitat.

An overland drainage area, referred to a Drainage Feature 1, was observed along the northern property boundary, within Community 9 (Figure 2). Some ponding water less than 5 cm was present in early spring, but otherwise the drainage area was dry in May and each subsequent visit. No surface connectivity was present to the downstream network.

Another overland drainage feature, referred to as Drainage Feature 2 (Figure 2), was observed along the western portion of Site. The feature appears to conveys flow from the County Road 49 ditch during early spring snow melt, or following significant precipitation events. No water was observed during any of the visits.

Finally, Drainage Feature 3 was observed between two rolling hills in the northeastern part of Site (Figure 2). This drainage area was dry during all visits.

During desktop review and later confirmed via field investigations, five open water pond features were identified on Site (Figure 2). All features were confirmed to be hydrologically isolated with no inlet or outlet present and suspected to be used historically for livestock and/or irrigation. Four of these ponds (Pond 1, Pond 2, Pond 4, and Pond 5) contained standing water greater than 1m deep. Pond 3 was dry during the spring and all subsequent assessments. By July, all ponds except Pond 1 and Pond 5, were dry.

4.3 Vegetation Communities and Inventory

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

Table 6 Vegetation Communities

No.	ELC Code	Community Description	Community Type	S - Rank
1	CUM	Cultural Meadow	Terrestrial	n/a
2	SAM1	Mixed Shallow Aquatic	Aquatic	n/a
3	MAM2-2	Reed-Canary Grass Mineral Meadow Marsh	Wetland	S5
4	CUT	Cultural Thicket	Terrestrial	n/a
5	FOD3-1	Dry – Fresh Aspen – Poplar Deciduous Forest	Terrestrial	S5
6	SWT2-2	Willow Mineral Thicket Swamp	Wetland	S5
7	SWM2-2	Swamp Maple – Conifer Mineral Mixed Swamp Type	Wetland	S5
8	FOD5-3	Dry – Fresh Sugar Maple – Oak Deciduous Forest	Terrestrial	S5
9	FOM4	Dry – Fresh White Cedar Mixed Forest Type	Terrestrial	S5
10	CVR	Constructed Residential	Constructed	n/a
11	TAGM5	Hedgerow	Terrestrial	n/a

No provincially rare vegetation communities were observed on the Site or adjacent lands. No at risk or provincially rare (S1, S2) species were identified on the Site.

Community 1 was a homogenous field dominated by graminoid species. The field was previously used for agriculture but has been left fallow and has started to naturalize. The dominant species in this community was Smooth Brome (*Bromus sp.*), Red Fescue (*Festuca rubra*), and Orchard Grass (*Dactylis glomerata*). Common Juniper (*Juniperus communis*) and

Eastern Red Cedar (*Juniperus virginiana*) were the primary shrub/tree species found in this community; however, they were restricted to the edges of the community around the hedgerows bordering the field. The maximum height of the graminoid vegetation in this community was 1 m. The fields were ploughed in June 2023 to support archeological investigations.

Community 2 was a shallow aquatic features dominated by Curly-leaved Pondweed (*Potamogeton crispus*) with Broad-leaved Cattail (*Typha latifolia*) and Reed Canarygrass (*Phalaris arundinacea*) abundant around the edges of these communities. Most of the features were dry by July with only Pond 1 and Pond 5 containing water all year around. Some tree species were present on the edge of these communities and included Eastern White Cedar (Thuja occidentalis), Manitoba Maple (Acer negundo), and Trembling Aspen (Populus tremuloides).

Community 3 was a wetland feature dominated by Reed Canarygrass, with Broad-leaved Cattail, and Spotted Joe Pye Weed (*Eutrochium maculatum*) abundant and dominating certain areas of the community. The community was also dominated by Yellow Marsh Marigold (*Caltha palustris*) in the spring. Some shrubs species were present on the edges of the community which included Red-osier Dogwood (*Cornus sericea*) and Willow spp. (Salix spp.). Some areas of the community contained some standing water in the spring (around house and north portion of Site) but were dry by July. Some of this community around the house and northern part of Site are old agricultural fields that most likely have returned to their previous state as wetland communities.

Community 4 was a cultural thicket dominated by Common Juniper (Juniperus communis) with graminoid species in the gaps between juniper shrubs which include Smooth Brome (*Bromus sp.*), Red Fescue (*Festuca rubra*), and Orchard Grass (*Dactylis glomerata*) etc. Some tree species starting to appear in the community were Eastern Red Cedar (Juniperus virginiana) and Trembling Aspen with the majority being <10 m. Most of this community appears to be old agricultural fields that have naturalized.

Community 5 was a deciduous forested community dominated by Trembling Aspen with Sugar Maple (*Acer saccharum*), Eastern Red Cedar, and Ironwood (*Ostrya virginiana*) associates.

Understory is dominated by Common Juniper with European Buckthorn (*Rhamnus cathartica*) to a lesser extent. Ground cover appears in patches where Common Juniper is not present with Poison Ivy (*Toxicodendron radicans*), Heart-leaved Aster (*Symphyotrichum cordifolium*), and Riverbank Grape (*Vitis riparia*) being the most abundant.

Community 6 was a thicket swamp dominated by various species of willows including White Willow (*Salix alba*), Sandbar Willow (*Salix interior*), and Pussy Willow (*Salix discolor*). Some larger tree species were present around the community edges including Easter White Cedar and Trembling Aspen. The most abundant ground cover species included Reed Canarygrass, Broad-leaved Cattail, and Spotted Joe Pye Weed. Most of this community was dry with no standing water by July except for a small portion in the southern part of this community.

Community 7 was a mixed swamp community. The community was dominate by Freeman Maple (*Acer x Freemanii*) with Green Ash (*Fraxinus pennsylvanica*), Easter White Cedar, White Elm (*Ulmus americana*) associates. Black Ash (*Fraxinus nigra*) an endangered species was also observed in this community. Understory cover was minimal with European Buckthorn and Ash samplings being the most abundant. Ground cover was dominated by Nodding Beggarticks (*Bidens cernua*), Reed Canary and to a lesser extent various sedge spp. (*Carex spp*.) This community contained 0-30 cm of water at various points through out the community with most of the community containing no standing water.

Community 8 was a deciduous forest dominated by Sugar Maple (*Acer saccharum*) and to a lesser extent Northern Red Oak (*Quercus rubra*). This community in the northern part of Site is dominated by Ironwood and to a lesser extent Sugar Maple and Northern Red Oak. The understory is thick with European Buckthorn dominating with Chokecherry (Prunus virginiana) and Common Juniper to a lesser extent. Ground cover was patchy and dominating the area with little shrub cover. With the most abundant ground cover species being, Yellow Trout-lily (*Erythronium americanum*), White Trillium (*Trillium grandiflorum*), Poison Ivy (*Toxicodendron radicans*) and Heart-leaved Aster depending on the time of year.

Community 9 was a mixed forest with Eastern White Cedar being the most dominate species present, with Shagbark Hickory (*Carya ovata*), Sugar Maple, Basswood (*Tilia Americana*), and Ironwood to a lesser extent. There was minimal understory with most being present on the

edge where it transitions into Community 4. Shrub species included European Buckthorn and Common Juniper. Ground cover was mostly nonexistent with Bracken Fern (*Pteridium aquilinum*), Broad-leaved Helleborine (*Epipactis helleborine*) and Broad-leaved Enchanter's Nightshade (*Circaea canadensis*) being the most abundant when present. The drainage channel that intersects this community in the north of Site contains some patches of Goldthread (*Coptis trifolia*). This channel was dry during the first visit at the end of May.

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

4.4 Wetland Delineation

Provincial mapping shows four unevaluated wetland features on and/or adjacent to the Site. Field investigations confirmed three wetland complexes are present on the Site which are referred to as Wetland 1 (composed of Community 7), Wetland 2 (composed of Community 3B, 6A, 6B and part of 7) and Wetland 3 (composed of Community 3A) (Figure 2). All other mapped unevaluated wetlands on Site were confirmed to be absent.

All wetland boundaries were determined using the 50% wetland vegetation rule. Where vegetation-based delineation was inconclusive, soil assessment with a hand auger was used to confirm wetland boundaries. Wetland boundaries on the Site were marked with a hand-held GPS unit.

4.4.1 Soil Characterization

Soil characterization was completed for wetland and transitional vegetation communities, where conclusive classification to vegetation type could not be completed based solely on vegetation. Soils were sampled using a hand auger, and moisture regimes were determined based on industry standard guidance. Unfortunately, soil sampling was unable to be conducted in many of the vegetation communities as most of the Site has shallow soils underlaid with rock, limited the auger depth to <20 cm in most areas. A summary of the soil characterization efforts on the Site is provided in Table 7, and soil core locations are illustrated on Figure 2.

Table 7 Soil Characterization Summary

No.	ELC Code	Soil Description	Effective Texture	Moisture Regime
1	MAM2-2	Silty clay loam over clay loam. Mottles and gley encountered at 10 cm. Bedrock and water table not encountered. Depth of refusal was 30cm.	5	Very Moist
2	MAM2-2	Unable to auger down past auger head	n/a	n/a
3	SWM2-2	Silty clay loam over clay loam. Mottles and gley encountered at 5 cm. Bedrock and water table not encountered. Depth of refusal was 40cm.	5	Very Moist
4	FOM4	Unable to auger down past auger head	n/a	n/a
5	FOM4	Sandy Loam. Unable to auger down past 15 cm. No mottles, gleys, water table and bedrock encountered. Community is on a slope	3	2
6	FOM4	Sandy Loam. Unable to auger down past auger head. No mottles, gleys, water table and bedrock encountered. Community is on a slope, sloping down toward drainage channel.	3	2
7	FOD5-3	Sandy Loam. Unable to auger down past auger head. No mottles, gleys, water table and bedrock encountered. Community slopes down to intermittent drainage.	3	2
8	MAM2-2	Silty clay loam over clay loam. Mottles and gley encountered at 10 cm. Bedrock and water table not encountered. Depth of refusal was 30cm.	5	Very Moist

4.5 Significant Woodlands

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

The municipality of Trent Lakes does not currently map Significant Woodlands.

The County of Peterborough Official Plan defines Significant Woodlands as "one 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. These are to be identified using criteria established by the Province."

The County of Peterborough OP states "In Ecoregion 6E, where woodlands cover 30 to 60% of land, a significant woodland is one that is 50 hectares in size or greater. Since significant woodlands have not been thoroughly studied or mapped in the County, development in or adjacent to woodlands meeting this size criteria should be evaluated to determine if they are significant."

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 8. To be considered significant, a woodland must meet the minimum standard for any one of the criteria listed in Table 8 *and* meet the minimum size for that woodland criterion. The minimum size criteria are contingent upon the percent cover of woodlands within the jurisdiction, as noted above.

Table 8 Summary of Woodland Significance Evaluation

Woodlands Significance Criteria	Percent Cover of Woodland in Planning Area					Meets Criteria (Yes/No)
	<5%	5-15%	16-30%	31-60%	>60%	
Woodland Size Criterion						
Woodland Size	2 ha	4 ha	20 ha	**50 ha**	N/A	No
Ecological Functions Criteria						
Woodland Interior	any	any	2 ha	**8 ha**	20 ha	No
Proximity to Other Woodlands and Other Habitats	0.5 ha	1 ha	4 ha	**10 ha**	20 ha	No
Linkages	0.5 ha	1 ha	4 ha	**10 ha**	20 ha	No
Water Protection	0.5 ha	0.5 ha	2 ha	**4 ha**	10 ha	No
Woodland Diversity (composition)	0.5 ha	1 ha	4 ha	**10 ha**	20 ha	No

Woodlands Significance Criteria	Percent Cover of Woodland in Planning Area					Meets Criteria (Yes/No)
	<5%	5-15%	16-30%	31-60%	>60%	
Uncommon Characteristics Criteria						
Unique Species Composition	0.5 ha	1 ha	2 ha	**4 ha**	10 ha	No
Rare Vegetation Community	0.5 ha	1 ha	2 ha	**4 ha**	10 ha	No
Rare or Uncommon Plant Species	0.5 ha	1 ha	2 ha	**4 ha**	10 ha	No
Older Woodland Characteristics	0.5 ha	1 ha	2 ha	**4 ha**	10 ha	No
Economic and Social Functions Criteria						
High Economic or Social Value	N/A	N/A	N/A	**N/A**	N/A	No

*Note: *woodlands must meet characteristics listed in the criterion **and** the corresponding area threshold*
Bold values indicate the area threshold relevant to this Site

4.5.1.1 Woodland Size Criteria

The woodland size criterion is based on the scarcity of woodlands within the planning region, with different thresholds for significance depending on the percent cover of woodlands. The woodlands on Site are approximately 6.8 ha and are disjunct and poorly connected to the adjacent woodlands northeast of the Site. The woodlands are severed by gaps of 20 m or along both Ranch Road and Moon Line Road North which will continue to be managed and maintained by the municipality. In addition, anthropogenic disturbance and sparse scrubland is evident on orthoimagery northeast of the Site and south of Ranch Road, further fragmenting the habitat. As such, the woodlands do not meet the size criteria of 50 ha.

4.5.1.2 Ecological Functions Criteria

There are five sub-criteria included under the ecological functions, each with a set of recommendations. A minimum size threshold is also applied to some of these criteria, which can range from 0.5-20 ha.

a) Woodland interior

Woodland interior habitat is defined as habitat that is more than 100 m from an edge and meeting the relevant area threshold for the planning area. None of the woodlands on Site had any interior more than 100 m from the woodland edge. The woodlands do not meet the interior size criteria of 8 ha.

b) Proximity to other woodlands or other habitats

This criterion refers to the proximity of the woodland to other significant natural heritage features or to fish habitat. If the woodland is located within 30 m of a feature that is likely receiving ecological benefit from the woodland, it should be considered significant if it meets the minimum area threshold of 1-20 ha (depending on circumstances). The woodlands are associated with the wetland complex internal to the Site but are not associated with fish habitat.

c) Linkages

This criterion recognizes the importance of connecting features within a natural heritage system. If the woodland is located within a defined natural heritage system or provides a connecting link within 120 m of two other significant features, it should be considered significant if it meets the minimum area threshold of 1-20 ha (depending on circumstances). Though there are linkages that connects the Sites woodlands to a greater contiguous woodland; the woodlands and linkages do not meet the minimum area threshold of 10 ha for 50% woodland cover in the planning area of the County of Peterborough.

d) Water protection

This criterion seeks to protect woodlands that provide water quality benefits by being located on or within 50 m of a sensitive or threatened watershed, groundwater discharge/recharge, headwater areas, watercourses, and fish habitat. The woodland would be considered significant if it met this requirement and met the minimum area threshold of 0.5–10 ha (depending on circumstance). The woodlands meet the minimum area threshold of 4 ha but were not located on or within 50 m of a sensitive or threatened watershed, groundwater discharge/recharge, headwater areas, watercourses, or fish habitat.

e) Woodland diversity

This criterion seeks to identify woodlands with rare or uncommon species or community composition or woodlands with high native diversity. The woodlands do not meet the minimum area threshold of 10 ha.

4.5.1.3 Uncommon Characteristics Criteria

The woodlands in Community 7 contain Black Ash trees and is greater than 4 ha. However, it should be noted that The Ministry temporarily suspended protections for Black Ash for a period of two years, until January 26, 2024. Despite its endangered designation, Black Ash is neither rare nor uncommon and does not have a restricted distribution.

4.5.1.4 Economic and Social Functional Values Criteria

The recommendations of the economic and social functional values criterion were reviewed; no economic or social values are known to exist for the woodlands on the Site. The woodlands on Site are separated by county road 49 to the west, agricultural fields to the north and residential structures to he south and east. Most of the woodlands are separated with old wire fence along the Site boundaries. Based on this criterion, the woodlands should not be considered significant.

Based on the above criteria, the woodlands on Site would not qualify as significant woodlands.

4.6 Significant Valleylands

The County of Peterborough defines Significant Valleylands as a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year and is ecologically important in terms of features, functions, representation, or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system. The Municipality of Trent Lakes does not define significant valley lands. While there are landform depressions that have water flowing through or standing for some period of the year, it is Cambiums opinion they don’t provide any ecologically important features or functions since they were dry by July.

No significant valleylands are present on the Site.

4.7 Wildlife Survey Results

Incidental wildlife observations were recorded during all site visits. These included American Crow, American Goldfinch, American Robin, American Toad, American Woodcock, Black-capped Chickadee, Blue Jay, Common Grackle, Eastern Gartersnake, Eastern Meadow Lark, Eastern Towhee, Field Sparrow, Red-eyed Vireo, Red-winged Black Bird, Savannah Sparrow, Song Sparrow, Wilson's Snipe, Wild Turkey, Eastern Whip-poor-will, , Wood Duck, Yellow Warbler, Black Bear scat, Chipmunk, Coyote scat/tracks, White-tailed Deer scat/tracks, Gray Treefrog, Green Frog, Grey Squirrel, Northern Leopard Frog, Wood Frog.

4.7.1 Birds

OBBA breeding bird surveys were completed as a part of the current study, as detailed in Appendix E. Bird species observed on or adjacent to the Site, breeding evidence, federal and provincial status and s-ranks are provided in Appendix E. A total of 14 species had probable or confirmed breeding evidence (shaded cells in Appendix E). Species with probable or confirmed breeding evidence **on the Site** included: American Crow, American Goldfinch, Blue Jay, Cedar Waxwing, Common Yellowthroat, Eastern Meadowlark, Eastern Towhee, Field Sparrow, Gray Catbird, Great Crested Flycatcher, Red-winged Blackbird, Savannah Sparrow, Song Sparrow, and Yellow Warbler.

Grassland breeding bird surveys were also completed as a part of the study. Transects were walked in the Communities 1 (CUM) on the eastern and western portions of Site show on Figure 2. No Eastern Meadowlark or Bobolink were observed along transect one (originating from BBS2) on the western side of the Site associated with Community 1D. However, two agitated Eastern Meadowlarks were observed at either end of transect two (between BBS4 and BBS5) on May 31, 2023, in Communities 1B and 1C. Five adults and one juvenile were also observed along the transect on June 8, 2023. Finally, on June 15, 2023, three Eastern Meadowlarks were observed along the transect; two were agitated and one was singing. The Eastern Meadowlark is endangered in Ontario and is afforded protective provisions under the ESA. Details on species of conservation concern and their protected habitats are provided in Section 4.10.

Eastern Whip-poor-will breeding bird surveys were completed as a part of the current study. Locations of survey locations are shown on Figure 2. No Eastern Whip-poor-will were observed during targeted surveys but an incidental observation was made during amphibian calling survey on June 28, 2023. The call was investigated further and confirmed to be north of Ranch Road (off Site).

4.7.2 Amphibians

Amphibian breeding surveys were completed and documented a total of five species on or adjacent to the Site, as shown in Table 9. Call codes are the maximum call levels documented for each species during the survey events. Of these, only the Gray Treefrog had a call level codes of 3. None of the species observed are federal or provincial SAR.

Table 9 Summary of Amphibian Survey Results

Sample Point	Survey Date	Survey Direction	Species	Maximum Call Intensity	# of Individuals	Inside or Outside 100 m Sample Plot
ACS1	May 30	South	Gray Treefrog	2	9	Inside
			American Toad	2	6	Inside
			Green Frog	1	4	Inside
	June 28		Green Frog	1	1	Inside
ACS2	May 30	Northeast	American Toad	1	3	Inside
			Green Frog	1	2	Inside
	June 28		Green Frog	1	5	Inside
ACS3	May 30	South	Gray Treefrog	3	n/a	Inside
			Green Frog	1	1	Inside

Sample Point	Survey Date	Survey Direction	Species	Maximum Call Intensity	# of Individuals	Inside or Outside 100 m Sample Plot
	June 28		Gray Treefrog	1	2	Inside
ACS4	May 30	North	Gray Treefrog	2	2	Inside
	June 28		Green Frog	1	2	Inside
ACS5	May 30	Southeast	Gray Treefrog	3	n/a	Inside
			Green Frog	1	5	Inside
	June 28		Gray Treefrog	1	2	Inside
			Green Frog	1	4	Inside
			Spring Peer	1	1	Inside
ACS6	May 30	Northeast	Gray Treefrog	3	n/a	Inside
			Green Frogs	1	3	Inside
	June 28		Green Frogs	1	3	Inside
ACS7	May 30	Northeast	Northern Leopard Frog	1	1	Inside
	June 28		None	-	-	-
ACS8	May 30	Southeast	Gray Treefrog	2	8	Inside
			Green Frog	2	6	Inside
	June 28		Spring Peeper	1	1	Inside
ACS9	May 30	East	Gray Treefrog	2	7	Inside

Sample Point	Survey Date	Survey Direction	Species	Maximum Call Intensity	# of Individuals	Inside or Outside 100 m Sample Plot
	June 28		Green Frog	1	2	Inside
ACS10	May 30	West	Gray Treefrog	1	5	Inside
	June 28		Gray Treefrog	2	6	Inside
			Green Frog	1	4	Inside

Notes: "-" indicates no calls heard

4.7.3 Reptiles

Turtle surveys were completed and a total of two species were identified on or adjacent to the Site, as shown in Table 10. Both of the species observed (i.e., Midland Painted Turtle and Snapping Turtle) are designated special concern under provincial regulations.

Table 10 Summary of Turtle Basking Surveys Results

Sample Point	Survey Date	Species	# of Individuals	Activity
TBS1 (Pond 4)	May 19	Midland Painted Turtle	6	Basking on log
	May 25	Midland Painted Turtle	5	Basking on log
	May 31	Snapping Turtle	1	Head sticking out of water
	June 08	-	-	-
	June 15	-	-	-
TBS2 (Pond 1)	May 19	-	-	-
	May 25	Midland Painted Turtle	1	Basking in Reed Canary

Sample Point	Survey Date	Species	# of Individuals	Activity
	May 31	-	-	-
	June 08	-	-	-
	June 15	-	-	-
TBS3 (Pond 2)	May 19	Midland Painted Turtle	2	One basking on log and one basking on Reed Canary mats
	May 25	Midland Painted	1	Head sticking out of water
	May 31	-	-	-
	June 08	-	-	-
	June 15	-	-	-
TBS4 (Pond 5)	May 19	-	-	-
	May 25	-	-	-
	May 31	-	-	-
	June 08	Midland Painted Turtle	1	Head sticking out of water
	June 15	-	-	-
TBS5 (Wetland 2)	May 19	-	-	-
	May 25	-	-	-
	May 31	-	-	-
	June 08	-	-	-
	June 15	-	-	-
TBS6 (Pond 3)	May 19	-	-	-
	May 25	-	-	-
	May 31	-	-	-
	June 08	-	-	-

Sample Point	Survey Date	Species	# of Individuals	Activity
	June 15	-	-	-

Notes: "-" indicates no turtles observed

4.7.4 Mammals

4.7.4.1 Bat Maternity Roost Surveys

Extensive investigations were completed during leaf-off conditions to evaluate candidate bat maternity roost habitat throughout the forested area proposed for removal. A total of 30 plots were established for the Site, with 10 plots in the treed ELC community types (i.e., Community 8A, 8B, and 9D). Ten plots were established in Community 8A, 10 in Community 8B, 10 in the Community 9D and walking transects were completed in the smaller Community 9E.

Table 11 Bat Maternity Roost Habitat Survey Results

Station ID	Tree ID	Species	DBH[1] (cm)	Tree Height (m)	Decay Code[2]	Notes
Community 8A						
1	1	White Ash	38	20-25	2	1 Cavity 12x7 cm
	2	Northern Red Oak	47	20-25	1	1 Cavity 15x10 cm
2	-	-	-	-	-	-
3	-	-	-	-	-	-
4	-	-	-	-	-	-
5	-	-	-	-	-	-
6	3	Sugar Maple	40	20-25	1	Leaf Cluster
7	4	Sugar Maple	50	15-20	2	2 Cavities 30x15 cm
8	-	-	-	-	-	-
9	-	-	-	-	-	-
10	-	-	-	-	-	-
Community 9D						
11	-	-	-	-	-	-
12	-	-	-	-	-	-

Station ID	Tree ID	Species	DBH[1] (cm)	Tree Height (m)	Decay Code[2]	Notes
13	-	-	-	-	-	-
14	-	-	-	-	-	-
15	1	Eastern White Cedar	52	15-20	1	Crack on multi stem tree.
16	-	-	-	-	-	-
17	-	-	-	-	-	-
18	2	Eastern White Cedar	57	15-20	2	Large crack 4 m x 15 cm.
19	-	-	-	-	-	-
20	3	Eastern White Cedar	36	15-20	2	Large Cavity 60x10 cm
Community 8B						
21	n/a	n/a	n/a	n/a	n/a	No suitable roost habitat observed
22	-	-	-	-	-	-
23	-	-	-	-	-	-
24	-	-	-	-	-	-
25	1	White Ash	57	20-25	2	5 Cavities 5x5 cm. Infested with EAB.
26	-	-	-	-	-	-
27	-	-	-	-	-	-
28	-	-	-	-	-	-
29	2	Northern Red Oak	>100	20-25	2	1 Cavity 10x10cm
30	-	-	-	-	-	-
Community 9E						
Transects	1	White Ash	59	15-20	2	Large Cavity 15x15 cm

Candidate roost tree density was calculated to be 8 trees/ha for Community 8A, 6 trees/ha for Community 9D, 4 trees/ha for Community 8B and 1.6 trees/ha for Community 9E. Based on survey results, these communities did not met the criteria for candidate maternity roosting habitat of 10 trees/ha.

4.7.4.2 Bat Acoustic Monitoring

Passive acoustic monitoring was conducted between June 8, 2023, and June 28, 2023, to assess utilization of the Site by SAR bats. The guidelines provided by MECP recommend establishing four stations per hectare of suitable habitat; however, there is an acknowledgement that this approach may not be practical on larger Sites. Using detailed vegetation communities information, and ELC mapping. Cambium identified areas within each community which exhibited the most suitable habitat potential (i.e., adjacent to identified snags) and deployed acoustic monitoring devices within those areas, and dispersed stations representatively across the treed communities. A total of 4 acoustic monitoring stations were established on the Site. Acoustic monitoring station locations are shown on Figure 2. Table 12, below, provides a summary of geographic coordinates, installation dates, device placement, and retrieval dates, for all stations.

Table 12 Bat Acoustic Installation Summary

Survey Station	Date Installed	Device Placement Notes	Date Retrieved	UTM Coordinates	
				Easting	Northing
BAS1	June 1, 2023	Installed on Sugar Maple	June 16, 2023	695344	4937420
BAS2	June 16, 2023	Installed on Sugar Maple	July 26, 2023	695513	4937519
BAS3	June 16, 2023	Installed on White Birch	July 26, 2023	695660	4937547
BAS4	June 1, 2023	Installed on Sugar Maple	June 16, 2023	695344	4937378

Based on the results, a total five bat species were identified on the Site over the course of the monitoring period. Four of the five species identified are relatively common in Ontario (Big Brown Bat, Eastern Red Bat, Hoary Bat, and Silver-haired Bat). The most dominant species in the area was Big Brown Bat followed by Silver-haired bat. In addition, low levels of species-linked events for Little Brown Myotis, an endangered species protected under the ESA, was also detected.

A summary of the 2895 species-linked events documented through the Study is provided below in Table 13. Of these events, 2346 (81%) were identified as Big Brown Bat, 268 (9.3%)

as Silver-haired Bat, 267 (9.2%) as Hoary Bat, 12 (0.4%) as Little Brown Myotis, and 2 (0.1%) as Eastern Red Bat.

Table 13 Bat Acoustic Monitoring Results Summary

Station	Big Brown Bat	Eastern Red Bat	Hoary Bat	Silver-haired Bat	Eastern Small Footed Myotis	Little Brown Myotis	Northern Myotis	Tri-colored Bat	Bat Not Identified to Species	**Total**
BAS1	879	0	90	77	0	0	0	0	466	**1512**
BAS2	52	0	2	0	0	0	0	0	6	**60**
BAS3	85	0	26	41	0	1	0	0	54	**207**
BAS4	1330	2	149	150	0	11	0	0	448	**2090**
Total	**2346**	**2**	**267**	**268**	**0**	**12**	**0**	**0**	**974**	**3869**
Total	**2346**	**0**	**265**	**41**	**0**	**11**	**0**	**0**	**0**	**2663**
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total	**0**	**2**	**2**	**227**	**0**	**1**	**0**	**0**	**0**	**232**

Notes:

p>0.1

p<0.05

P<0.1

Based on these results, bat activity on the Site appears to be dominated by Big Brown Bat. The next highest proportion of recordings was associated with Silver-haired Bat and Hoary Bat.

A total of 12 events recorded at monitoring stations BAS3 and BAS4 were associated with Little Brown Myotis. The one event recorded at BAS3 is a false positive given the p-value. The mean passes/night at BAS4 was 0.73 suggesting that this species was present in some capacity, but limited in numbers. No other SAR bat species were recorded on the Site.

The low density of candidate maternity roost snags suggest the area is primarily used at low levels for foraging and non-maternity roosting activities. It has been communicated to Cambium that all efforts are being made to retain as many trees as possible on the Site and retain the natural character of the landscape. As such, tree clearing is expected to be very

minor. Guidance provided by MECP outlines that, "*If a proposed activity will avoid impairing or eliminating the function of habitat for supporting bat life processes (e.g. remove, stub, etc. a small number of potential maternity or day roost trees in treed habitats) but the timing of tree removal will avoid the bat active season (April 1 – September 30 in Southern Ontario / May 1 to August 31 in Northern Ontario), then there is no need to conduct species at risk bat surveys of treed habitats. The damage and destruction assessment may vary geographically as the availability of other nearby maternity and day roost trees differs across the province of Ontario*."

Given that the proposed tree removals will be minor, utilization by SAR bats is low, and extensive habitat will remain on the landscape in the immediate vicinity, we are of the opinion that impacts to SAR bats can be avoided provided clearing activities occur during the appropriate timing window (i.e., clearing to occur between October 1st and March 31st). A summary of recommendation mitigation is provided in Section 7.0.

4.8 Significant Wildlife Habitat

Guidance documents produced by the MNRF for the identification and evaluation of SWH were used to identify and confirm occurrences of SWH on the Site (MNR, 2000). The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (Ministry of Natural Resources and Forestry, 2015) apply to the subject property. Information gathered during the background review and field investigations were compared to SWH criteria to evaluate the property for SWH. The results of the SWH assessment are provided in the following sections and summarized in Appendix F. Details on species of conservation concern and their protected habitats are provided in Section 4.10.

4.8.1 Deer Wintering Habitat (Stratum I and II)

Mapped Deer Wintering Habitat area (Stratum I/Stratum II) does not overlap the Site or adjacent lands.

4.8.2 Turtle Wintering Areas

According to The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (Ministry of Natural Resources and Forestry, 2015) the presence of five over-wintering Midland Painted Turtles, or one or more Northern Map or Snapping turtle within a wetland or pond is considered significant.

The wetlands on Site were not suitable for turtle overwintering given the depth and hydroperiod observed by Cambium during field observations. However, several ponds are present on the Site and were investigated.

Six Midland Painted Turtles and one Snapping Turtle were observed at Pond 4 during early spring surveys. However, Pond 4 was dry by July. Further, Cambium staff noted the pond to be dry on September 9 and November 24, 2023 indicating it is not suitable for turtle overwintering. As such, observations within Pond 4 are expected to be turtles moving from overwintering habitat in the immediately vicinity (i.e., Pond 5) and moving to Pond 4 to utilize the basking logs and open exposure, but not actually using the feature to overwinter. As noted, Pond 5 contained enough water for turtles to overwinter during most of the field season and has therefore been characterized as turtle overwintering habitat based on observations at Pond 4. Further discussion and recommendations for turtle overwintering is provided in Section 5.2.

4.8.3 Amphibian Breeding Habitat

According to The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (Ministry of Natural Resources and Forestry, 2015) amphibian breeding habitat is significant if 2 or more frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more frog/toad species with Call Level Codes of 3 are documented. Call codes counts of 3 were documented at ACS3, ACS5, and ACS6 for Gray Treefrog during the May 30, 2023, surveys. They were the only species documented calling at this intensity, however, it is acknowledged that surveys were not completed during the early spring window (i.e., April 15th to April 30th) due to the timing of Cambiums retention.

4.9 Fish and Fish Habitat

Drainage features on the Site were identified as intermittent or ephemeral and lacked suitable connectivity to the downstream network. A License to Collect Fish for Scientific Purposes (LCFSP) was obtained to sample for fish habitat but they were all dry during the approved survey period (i.e., after July 15th), confirming no permanent fish habitat is present on Site. Given its lack of connectivity to downstream habitat, no seasonal fish habitat was present on Site.

Five open water ponded features were identified on Site. All features were determined to be hydrologically isolated, with no inlet or outlet present. As such, they are not afforded protective provisions under the federal *Fisheries Act.*

4.10 Species of Conservation Concern

According to the Significant Wildlife Habitat Technical Guide (Ministry of Natural Resources, 2000), Species of Conservation Concern (SCC) include species that are identified as at risk by COSEWIC or on the SARO list, known rare species (provincially, regionally, locally), and species with populations in known decline. A list of SCC, including SAR, with potential to occur in the general vicinity of the Site has been compiled based on known species' ranges, habitat requirements, and review of background information sources (as listed in Section 3.1). In addition, the list has been augmented with direct field observations from the Study, as detailed in the previous sections. Cambium has employed a habitat-based screening, supplemented with targeted field surveys when necessary, in order to identify suitable habitat for species located on or adjacent to the Site. A detailed habitat suitability analysis is provided in Appendix B and a discussion of the results is provided below.

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

4.10.1 Endangered and Threatened Species

The habitat of endangered and threatened species is regulated under the ESA, 2007, and associated regulations. The following endangered and threatened species are known to occur in the regional area of the Site, and the habitat types occurring on the Site may support these

species. Accordingly, a detailed evaluation of habitat type, size, and availability was completed, supplemented by targeted surveys where required, to determine whether the Site is actively used by any of the species listed below.

4.10.1.1 Bobolink

Bobolinks are listed federally and provincially as threatened. They utilize tall, grassy meadows, hayfields, and croplands for foraging and tend to nest in forage crops (hayfields and pastures) as found in Community 1 on Site. No Bobolinks were observed during field visits and target surveys.

4.10.1.2 Eastern Meadowlark

Eastern Meadowlarks are listed federally and provincially as threatened. They build their nests on the ground, camouflaged and woven with long grasses, as found in pasture and hayfield, orchard, shrubby field, and other open area habitats. Several Eastern Meadowlarks were observed on Site during targeted surveys in Communities 1B and 1C, as outlined in Section 4.7.1. Most of the observed Eastern Meadowlarks were adults displaying agitated behaviour and calls, indicating that they were nesting in the area.

It Is important to note that some of the Meadowlarks observed on different dates were likely the same individuals. The highest number of Eastern Meadowlarks observed at the same time during a survey was five individuals on June 8, 2023. No Eastern Meadowlarks were observed in the eastern field on the Site. Although the eastern and western fields are similar, the absence of Eastern Meadowlark in the eastern field is likely attributed to a lower proportion of thatch (dead grasses that the Eastern Meadowlark uses to weave its nest) than in the western field. The proportion of graminoid species overall in the eastern field is 25% less than in the western field.

During the spring of 2023, several fields on the Site, including Community 1B, were ploughed. Cambium has been in consultation with MECP regarding the activities and proposed change in land use. Based on correspondence provided by MECP, a Registration of Activities can be completed for the Phase 1 lands as per Section 13 of O. Reg. 830/21. Additional consultation

and completion of associated approval mechanisms will be required for the Phase 2 lands. Recommendations for mitigation and compensation are outlined in Section 5.4 and 7.0.

4.10.1.3 Eastern Whip-poor-will

The Eastern Whip-poor-will is threatened both federally and provincially. It uses habitats with a mix of open and forested areas, and its breeding is dependent on forest structure being semi-open or with patchy clearings such as found in Community 4, and to a lesser extent Community 5 and 8. No Eastern Whip-poor-will were observed during targeted surveys but an incidental observation was made during amphibian calling survey on June 28, 2023. The call was investigated further and confirm to be north of Ranch Road (off Site).

4.10.1.4 Blanding's Turtle

Blanding's Turtle is listed federally and provincially as threatened. Blanding's Turtle regularly moves between wetlands and other aquatic areas including marshes, swamps, ponds, fens, bogs, slow-flowing streams, shallow bays of lakes and rivers, and slough forests, during their active season. Nests are typically created in open habitats with low vegetation cover and high sun exposure such as forest clearings, meadows, shorelines, beaches, rock outcrops, agricultural fields, gravel roads, road shoulders, gardens, powerline right-of-ways, and abandoned railroad beds. Overwintering occurs in wetlands and ponds that maintain free (unfrozen) shallow water throughout the winter. No Blanding's Turtle were observed during field investigations.

4.10.1.5 SAR Bats

The treed areas and woodlands have the potential to support SAR bats. Through acoustic monitoring surveys, one species of endangered bat, Little Brown Myotis, was identified on the Site; however, maternity roosting habitat surveys indicate the areas do not contain high density of suitable maternity roost snags. This species was found to have low levels of passes, which indicate a low number of individuals using the Site. As such, the Site is expected to be used for non-maternal roosting and general foraging activities. Provided tree clearing occurs outside the active period for bats (i.e., October 1 to March 30th clearing recommended) impacts to the species are expected to be mitigated.

4.10.1.6 Black Ash

Black Ash was added to the Species at Risk in Ontario List (O. Reg. 230/08) as an Endangered species on January 26, 2022. The Black Ash is a smaller-sized tree highly susceptible to the invasive Emerald Ash Borer (EAB) (*Agrilus planipennis*) is a non-native invasive wood-boring beetle from Asia. Most Ash tree species in North America are susceptible to this beetle have no natural defence which can kill up to 99% of ash trees within 8-10 months after infestation. Black Ash grows everywhere in Ontario except for the far north, preferring moist climates and soils such as swampy woodlands or bogs. This species was documented during vegetation surveys in Community 7. No impacts are proposed to Community 7 from the proposed development.

4.10.2 Special Concern Species

The Site may provide habitat for some turtle species. The Midland Painted Turtle uses waterbodies such as ponds, marshes, lakes, and slow-moving creeks with a soft-bottom and aquatic vegetation as its habitat. The Snapping Turtle is found in shallow water with soft mud and leaf litter, but travel to gravel or sandy embankments/beaches to lay eggs. Multiple Midland Painted Turtles and one Snapping Turtle were observed in the ponds on Site. However, most ponds on were dry by July, with only Pond 5 providing sufficient depth to support overwintering. No impacts to Pond 5 are proposed from the proposed development.

The Site may provide habitat for some snake species. The Eastern Ribbonsnake is usually found close to water as they are strong swimmers. It prefers wetland habitats where its prey species, frogs, and small fish, are abundant. Communities 2, 5, 6 and a lesser extent Community 3 could provide suitable habitat for this species. This species was not observed during any field visits.

The Monarch Butterfly uses a variety of habitats with wildflowers, including habitats such as Community 1, but requires milkweed plants as a food source for their caterpillars. Community 1 contains Common Milkweed and Monarch Butterflies were observed foraging in the eastern portions of Site in the unploughed areas.

The Yellow-banded Bumble Bee is a habitat generalist and therefore could use all communities on Site expect the wetland communities. The Yellow-banded Bumble Bees were not observed during any field visits.

4.10.3 Locally Important Species

The Site may provide suitable habitat for Eastern Milksnake, a federally listed species. Note that under provincial legislation (i.e., Endangered Species Act, 2007), Eastern Milksnake is not currently afforded species or habitat protection. 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. Community 1 and the areas around the house could provide habitat for this species. This species was not observed on Site during any field visits.

5.0 Impact Assessment and Mitigation Measures

The Site is approximately 47.96 ha, predominantly undeveloped, and composed of agricultural fields, wetlands, woodlands, thickets, and cultural meadows. As noted in the preceding sections, the development application is being pursued under two phases (Phase 1 and Phase 2). The proposed development consists of a residential subdivision and associated road network. A Draft Site Plan is provided in Appendix A.

In summary, the following protected features were identified on and adjacent to the Site:

- Unevaluated Wetlands
- Intermittent Watercourse
- Significant Wildlife Habitat
- Habitat of Endangered and Threatened Species

As outlined in the preceding sections, no other natural heritage features protected by provincial policy were confirmed on or adjacent to the Site.

The following sections address potential impacts to protected features identified on and adjacent to the Site that may result from the proposed development and Site alteration. Mitigation measures and best management practices have been recommended to ensure that the integrity of the existing natural features is protected and/or enhanced and that the associated functions are not negatively impacted during or following construction.

5.1 Unevaluated Wetlands

Two wetlands (Wetlands 2 and 3) are proposed for removal to accommodate the development. Both wetlands were not suitable for turtle overwintering given the depth and hydroperiod observed by Cambium during the field investigations. No provincially rare (i.e., S1, S2 or S3) vegetation species were documented within the wetlands, and there were no rare vegetation community types observed. Neither wetland were identified as SWH for amphibians, although it is acknowledged that the first recommended survey was not completed given the timing of Cambiums retention.

Wetland 3 is 1.2 ha in size and wholly located within the Phase 1 lands. It is dominated by the non-native Reed Canary Grass and was not characterized as SWH (see Section 4.7.2 and 5.2.2 below). As such, removal can be completed in conformity with the PPS and applicable policies in the *Planning Act* framework.

Wetland 2 is 3.2 ha in size and located in the northwest corner of the Phase 2 lands. Further investigations are recommended to confirm if the complex should be considered SWH, and if so, what communities within the complex provide significant function. Pending survey results, enhancement opportunities exist along the Wetland 1 corridor which can be pursued to mitigate impacts on the landscape.

In addition to the PPS and *Planning Act* framework, the wetlands are protected features under the *Conservation Authorities Act* and *Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits* (formerly *Ontario Regulation 182/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses)* and regulated by KCA. A permit will be required from KCA prior to removal of the features. To facilitate this permitting, particular consideration should be made to maintaining or improving the surface drainage and flooding challenges within and proximal to the Site. In addition, it is acknowledged that Ecological Offsetting programs are not available within KCA's existing policy framework to help off-set and mitigate cumulative impacts from non-significant wetland removals on the landscape. As such, areas of proposed buffer enhancement have been identified along the central Wetland 1 corridor, to mitigate removals on the landscape, totalling 4.1 ha (Figure 3).

Wetland 1 will be retained and buffered and will serve to maintain the ecological function of the Site. It provides a central corridor composed of a mosaic of treed and wetland communities, which can be utilized by wildlife, and provides continuity to hydrological flow patterns on the landscape. Pond 5, discussed below, will be captured within this naturalized and enhanced habitat block. Further, Buffer Enhancement Areas have been identified adjacent to the corridor, which provide an opportunity to improve buffer density and ecological function, post-development.

5.2 Significant Wildlife Habitat

5.2.1 Turtle Wintering Areas

Field investigations identified one pond (Pond 4) which supported turtle basking in quantities considered significant in early Spring 2023. However, this feature was observed to be dry in July and continued to lack water into late fall (i.e., September through November), when turtles would be looking for, or in, hibernation habitat. As such, despite basking survey results, the feature is not considered SWH. However, given the observations, its function on the landscape is acknowledged and should be mitigated to the extent feasible. In particular, the adjacent Pond 5 contains suitable depth to support overwintering but was not observed to support high levels of basking in the spring. As outlined in Section 4.7.3, Cambium is of the opinion that turtles move from Pond 5 immediately following ice-off to the adjacent Pond 4 where basking conditions are more favourable. As such, Pond 5 has been designated as SWH for turtle overwintering, based on observations at Pond 4, and recommended for retention. Notably, suitable basking logs were present in Pond 4 but not in Pond 5. To further mitigate impacts, it is recommended that basking logs are installed within Pond 5, prior to the removal of Pond 4, to enhance basking conditions and mitigate removal of the Pond 4 feature. Provided these recommendations are implemented, impacts to turtles are expected to be mitigated and avoid negative impacts as required under the PPS.

5.2.2 Amphibian Breeding Habitat

As outlined above, only two of the three amphibian calling surveys could be completed during the 2023 field season, given the timing of Cambiums retention (i.e., early April survey not completed). However, no call code levels of 3 were documented within Wetland 3 (ACS1 and ASC2) during the May 30 and June 28 survey. In addition, the feature is highly anthropogenic and dominated by Canary Reed Grass. As such, Wetland 3 (Phase I lands) is not considered SWH for amphibians.

Within Wetland 2 (Phase 2 lands), a call code of 3 was documented for a single amphibian species (Gray Treefrog) at both the ACS5 and ASC6 stations, but otherwise breeding activity

was low. Further investigations are recommended to confirm if the complex should be considered SWH. This recommendation is carried forward in Section 7.0.

5.3 Intermittent Streams

An intermitted stream (Watercourse 1) was documented and evaluated in the northeast corner of Site. While it was confirmed to not be fish habitat, impacts to the feature should be mitigated to maintain drainage and hydrological function to the downstream network. The current Draft Plan proposes a road over this feature. Provided an appropriately sized and installed culvert is implemented, the function of the feature can be maintained and no impacts are anticipated. A permit from KCA may be required to facilitate this work.

5.4 Habitat of Endangered and Threatened Species

The Site was screened for habitat and supplemented by targeted surveys for the following endangered / threatened species that may occur on the Site:

- Eastern Meadowlark
- Little Brown Myotis

5.4.1 Eastern Meadowlark

As outlined in Sections 4.7.1 and 4.10.1.2, Community 1B and 1C provided habitat for the Eastern Meadowlark (Figure 3). Under the ESA, the MECP has the authority to grant various types of permits and authorizations for activities that would otherwise not be allowed under the Act, with conditions that are aimed at protecting, reducing harm, and/or recovering SAR. The proposed development is subject to a regulatory exemption under Section 13 of O. Reg. 830/21 (Eastern Meadowlark).

In addition, new provisions outlined in O. Reg. 830/21, and accompanying O. Reg. 829/21, provide regulatory mechanisms to facilitate removal of habitat during development applications. As outlined in Section 37 of the regulation, following registry of the activity, payment of a species conservation charge can be issued to the *Species at Risk Conservation Trust* as a compensation approach. As discussed in 4.10.1.2, Cambium has been in consultation with MECP regarding the proposed activities. Based on correspondence provided

by MECP, a Registration of Activities can be completed for the Phase 1 lands as per Section 13 of O. Reg. 830/21. However, additional consultation, and completion of associated approval mechanisms, will be required for the Phase 2 lands.

Provided the proponent satisfies all conditions set out in Section 13 of the regulation, the development of the proposed subdivision can proceed in compliance with provincial legislation. Given that policy mechanisms are available to ensure compliance with the ESA without modification to the Draft Plan, it is recommended that registration of the activities and subsequent compliance with ESA is required as a conditions of Draft Plan approval.

5.4.2 Little Brown Myotis

One SAR bat was identified on Site at a low detection volume through acoustic analysis work: Little Brown Myotis. Concurrent maternity roosting surveys determined that the Site has a low density of candidate maternity roost snags. As such, findings suggest the Site is mostly likely used by Little Brown Myotis for foraging and non-maternity roosting activities. It has been communicated to Cambium that all efforts are being made to retain as many trees as possible on the Site to retain the natural character of the landscape within the development area. As such, tree clearing is expected to be minor, and only where necessary. Guidance provided by MECP outlines that, "*If a proposed activity will avoid impairing or eliminating the function of habitat for supporting bat life processes (e.g. remove, stub, etc. a small number of potential maternity or day roost trees in treed habitats) but the timing of tree removal will avoid the bat active season (April 1 – September 30 in Southern Ontario / May 1 to August 31 in Northern Ontario), then there is no need to conduct species at risk bat surveys of treed habitats. The damage and destruction assessment may vary geographically as the availability of other nearby maternity and day roost trees differs across the province of Ontario*."

Given that proposed tree removals will be minor in magnitude, and extensive habitat will remain on the landscape in the immediate vicinity, we are of the opinion that impacts to SAR bats can be avoided provided clearing activities occur during the appropriate timing window (i.e., clearing to occur between October 1 and March 31). A summary of recommendation mitigation is provided in Section 7.0.

5.5 Mitigation Measures and Best Management Practices

To minimize potential impact to the natural environment on and surrounding the Site, Cambium recommends that the mitigation measures and best management practices outlined in Table 14 be implemented at the Site.

Table 14 Mitigation Measures and Best Management Practice Recommendations

Potential Impact	Recommended Best Practice
Erosion and Sedimentation	Prior to any construction activities taking place, it is essential that perimeter sediment fencing be installed around construction areas. Fencing should be properly keyed into the ground and securely fastened to vertical supports spaced ≤ 2 m apart. This key control measure will help prevent sediment from entering surface water features (i.e., wetlands and the watercourse) in the surrounding landscape. All sediment fencing should be regularly maintained and kept in good working condition, until the area has been stabilized and/or successfully revegetated. Any observed overland drainage channels originating from Site, that may or may not have arisen as a result of erosion, should be directed to a check dam structure, prior to discharging to off-site areas. Construction activities that require earthworks (e.g., grading, excavation, etc.) should be scheduled to avoid dates of heavy rainfall events and times of high runoff volumes.
Increase in Runoff - Impervious Surfaces	Runoff from the Site is expected to increase with the introduction of impermeable surfaces (i.e., building roofs, roadways, and walkways) and compacted surfaces with reduced infiltration capacity. Measures to increase infiltration of run-off from these surfaces should be encouraged and, where possible, included in the Site Plan for the development. Eavestrough downspouts should be directed to vegetated areas (such as lawn, or gardens) and not onto hardened surfaces, to encourage infiltration.
Changes to Water Quality and Quantity	The Stormwater Management Plan prepared for the Site should specifically address potential stormwater-related impacts to water quality and quantity of the surrounding wetlands and watercourse, through quality control measures and a feature-based water balance study.
Wildlife: Birds (Disturbance and Harm)	Nesting birds and their nests, eggs, and young are protected under the *Migratory Birds Convention Act, 1994*. Vegetation clearing on the Site should occur outside the breeding bird season, which extends from April 1 to August 31 in the local area (as per Environment and Climate Change Canada Guidelines).

Potential Impact	Recommended Best Practice
	If vegetation clearing or construction is to occur between April 1 and August 31, the vegetation should be investigated by a qualified biologist to confirm if any active nests are present, prior to site alteration. Vegetation clearing can proceed provided there are no active nests. If active nests are confirmed, the nests should be left undisturbed until young have fledged or the nest is determined to be inactive. Note that some birds nest on the ground and in low-lying vegetation and shrubs; therefore, all habitat types should be inspected prior to ground disturbance if removals are to occur during the breeding season.
Wildlife: Bats (Disturbance and Harm)	Tree removal should be minimized to the extent feasible. Small scale tree removal will not result in impairing or eliminating the function of habitat to support bat life processes provided the tree and building removal avoids the active bat season (April 1 – September 30). If vegetation clearing, demolition or construction is to occur between April 1 and September 30, the vegetation should be investigated by a qualified biologist to confirm whether SAR bat habitat may be present. Presence or absence of habitat should be confirmed through acoustic monitoring following industry standard protocols prior to any tree removal during the active season for bats. Vegetation clearing can proceed provided absence is confirmed.
Wildlife: Reptiles (Disturbance and Harm)	Turtles and snakes are particularly vulnerable to construction-related impacts on sites adjacent to wetlands, watercourses, and waterbodies. Sediment fencing can function as wildlife exclusion fencing. To exclude wildlife from the Site, sediment fencing should be installed around the entire perimeter of the construction area prior to the earlier of May 1 or commencement of Site preparation to keep turtles and snakes from entering the construction area. This fencing should be made of light-duty sediment fence, staked at regular intervals, trenched-in at least 10-20 cm below ground, with an above ground height of at least 60 cm. The sediment fence should be inspected regularly to ensure that it remains in good condition: and any downed areas, rips, or holes should be repaired or replaced immediately. A designated point of ingress/egress should be identified, and a moveable barrier be constructed, to allow for the Site to fully remain enclosed while allowing vehicular access to the Site as needed. The construction area should also be actively inspected for turtles and snakes each day prior to the start of work throughout the duration of construction. As the Site is located adjacent to potential habitat for turtles, workers should be aware of the nesting season for turtles, which extends from May 15 to August 15. All stockpiled materials should be kept inside

Potential Impact	Recommended Best Practice
	the exclusion fencing area and ideally should be covered and well secured around the base, to prevent turtles from nesting in loose substrates. Should any nesting turtles be encountered, work should stop immediately, and the turtle should be left to finish nesting undisturbed. The turtle should be photographed, and the nest marked to ensure it is not disturbed during construction, or until eggs have hatched (late August – September). If a nest is laid in a stockpile or other area that requires disturbance, Cambium should be contacted to determine if the nest can be relocated. If any individuals are encountered, they should be photographed and allowed time to move out of harm's way.
Species at Risk (SAR; Threatened and Endangered)	SAR observations, including most species of snakes and turtles, should be reported to the Natural Heritage Information Centre (NHIC). If any individuals are encountered, they should be photographed and allowed time to move out of harm's way. SAR should not be handled by unauthorized individuals.
Spread of Invasive Species	Invasive species are becoming problematic throughout Ontario and can adversely impact our natural landscapes, including wetlands, woodlands, and watercourses. Best management practices to reduce the spread of invasive species include: 1. Revegetate with species native to the local area. 2. Request fill and compost from reputable sources that are conscious of the potential for the spread of invasive species via these media. 3. Get to know the most common invasive species in the area. 4. Brush off or clean any shoes, boots and equipment that have encountered invasive species before returning to the property. Equipment and vehicles coming into the work area should be free of soil and seeds that could introduce non-native and invasive species following the Clean Equipment Protocol for Industry: Inspecting and Cleaning Equipment for the Purposes of Invasive Species Prevention (Halloran, 2013) 5. Immediately eradicate invasive species if they are observed on the property. 6. Do not compost invasive species; put them in plastic bags and dispose of them in the garbage. 7. Do not dispose of lawn or garden clippings in the forest or wetlands to avoid species introductions. An excellent resource for identifying and controlling invasive species can be found through the Ontario Invasive Plant Council: Home - Ontario Invasive Plant Council (ontarioinvasiveplants.ca) (OIPC, 2022)

Potential Impact	Recommended Best Practice
Anthropogenic Impacts – Noise	Noise is not expected to increase significantly because of the proposed development as it is consistent with the land use on the surrounding properties. Maintaining the wooded areas surrounding the natural features on the Site will serve to buffer wildlife within the natural areas from noise-related impacts. Temporary acute noise may occur during construction activities and should follow appropriate local noise by-laws. All equipment should be equipped with appropriate mufflers to mitigate noise levels during construction.
Anthropogenic Impacts – Lighting	Artificial lighting can have an impact on nocturnal movement of wildlife within natural areas. To minimize impacts to wildlife, it is recommended that outdoor lights be operated on timers, rather than by motion detection. Outdoor lighting associated with the development should be directed at the ground, rather than into the adjacent natural areas. Bulb wattage should be as low as practical while meeting the safety intent of the lighting. Lighting in common areas should be capped to direct light to the intended area of the ground to limit light pollution.
Anthropogenic Impacts – Domestic Animals	Access of domestic animals to natural areas can have a negative impact on local wildlife due to predation, harassment, and spread of illness and disease. Signage should be posted at trailheads and park areas to keep pets on a leash at all times, and to appropriately dispose of pet waste.

6.0 Policy Conformity

6.1 Provincial Policies

The proposed development is subject to the natural heritage policies of the PPS, the ESA, the Municipality of Trent Lakes Official Plan, and the County of Peterborough Official Plan. The proposed development can be completed in conformity with the PPS, as outlined in Table 15, provided the details outlined in Section 5.0 are considered, and the recommendations outlined herein and summarized in Section 7.0 are followed.

Table 15 PPS Policy Conformity Summary

Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
Significant Wetland in Ecoregions 5E, 6E and 7E or in the Canadian Shield north of Ecoregions 5E, 6E and 7E	None	None	2.1.5 a); 2.1.8
	Explanation: No significant wetlands present on Site.		
Significant Coastal Wetland	None	None	n/a
	Explanation: n/a		
Coastal Wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b)	None	None	n/a
	Explanation: n/a		
Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)	None	None	2.1.5 b); 2.1.8
	Explanation: The woodlands on Site are not considered significant as outlined in the analysis completed in Section 0.		
Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)	None	None	n/a
	Explanation: n/a		
Significant Wildlife Habitat (including habitat of special concern species)	Yes	Potentially	2.1.5 d); 2.1.8
	Explanation: One feature, Ponds 5, was characterized as SWH (Turtle Wintering) under provincial policies. The feature is being		

Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
	buffered and is not anticipated to be impacted by the development. To further mitigate impacts, recommendations in Section 5.2, and summarized in Section 7.0, should be implemented. Wetland 2 is considered candidate SWH for amphibian breeding but could not be confirmed during the 2023 season. Additional discussion and recommendations are provided in Section 5.1 and 5.2.		
Habitat of Threatened and Endangered Species	Yes	Potentially	2.1.7
	Explanation: Nesting habitat for Eastern Meadowlark was identified on Site. Cambium has been in consultation with MECP regarding the proposed activities. Based on correspondence provided by MECP, a Registration of Activities can be completed for the Phase 1 lands as per Section 13 of O. Reg. 830/21. However, additional consultation, and completion of associated approval mechanisms, will be required for the Phase 2 lands. Given that policy mechanisms are available to ensure compliance with the ESA without modification to the Draft Plan, it is recommended that a Notice of Activity and subsequent compliance with the ESA is required as a conditions of Draft Plan approval.		
Areas of Natural and Scientific Significance	None	None	n/a
	Explanation: n/a		
Fish Habitat	None	None	2.2.6
	Explanation: No fish habitat is present on Site. A 15 m setback and appropriately sized and installed culvert is recommended for Watercourse 1 to mitigate potential impacts to the downstream network. Provided this recommendation is implemented, no indirect impacts are anticipated from the development.		

6.2 Conservation Authority Policies

Impacts to two local wetlands (Wetland 3 and Wetland 1) are proposed to accommodate the development. They are associated with the Phase 1 and 2 lands, respectively. In addition, a culvert is proposed over Watercourse 1, to facilitate access from the eastern extent of the property. A permit will be required for these activities under the *Conservation Authorities Act* and *Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits* (formerly *Ontario Regulation 182/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses)* by KCA. Based on correspondence with KCA, a detailed compensation plan will be required to facilitate approvals of the wetland removals and demonstrates appropriate avoidance, mitigation and off-setting measures are implemented to the satisfaction of the KCA. These recommendations are carried forward in Section 7.0.

7.0 Summary of Recommendations

The following recommendations are provided for the proposed development:

1. All required approvals and permits should be obtained prior to the commencement of any Site alteration / construction activities.
2. All development setbacks identified herein should be included on all future Site Plans.
3. Vegetation removal or alteration should take place outside the breeding bird season (April 1 to August 31) and the active roosting period for bats (April 1 to September 30). As such, clearing should take place between October 1st and March 31st of any calendar year. Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed within 48 hours prior to clearing activities. If nests are found, work within the area must cease until the nest has fledged, as per the federal *Migratory Birds Convention Act*. Should any clearing be required during the active roosting period for bats, please contact the Ministry of Environment, Conservation and Parks for further direction (e.g., acoustic monitoring, exit surveys) to ensure conformity with the *Endangered Species Act.*
4. One feature (Pond 5) was considered SWH under Section 1.1 of the SWH Schedule policy *Seasonal Concentration Areas of Animals*: *Turtle Wintering Areas*. Enhancements to turtle basking habitat is recommended to mitigate impacts on the landscape. Details are provided in Section 5.2.
5. The presence of nesting habitat for Eastern Meadowlark, a provincially Threatened species, was identified on the Site. Given the area of potential habitat proposed to be impacted, the works would qualify for an exemption under O. Reg 830/21 of the ESA. However, prior to removal of the habitat, the steps outlined in 5.4.1 must be implemented to avoid contravention of the Act, or as required through consultation with MECP. Based on correspondence provided by MECP, a Registration of Activities can be completed for the Phase 1 lands as per Section 13 of O. Reg. 830/21. However, additional consultation and completion of associated approval mechanisms will be required for the Phase 2 lands. It is recommended that registration of the activities and subsequent compliance with ESA is required as a condition of Draft Plan approval.

6. An early season amphibian survey is recommended at ACS5 and ASC6, within the Phase 2 lands, to confirm amphibian call levels and subsequent categorization of Wetland 2 as candidate or confirmed SWH for amphibian breeding. Further discussion is provided in Section 5.2.
7. The Stormwater Management Plan prepared for the Site should specifically address potential stormwater-related impacts to water quality and quantity of the surrounding features, erosion potential, and a feature-based water balance study (if required).
8. An Erosion and Sediment Control (ESC) Plan that includes perimeter light duty sediment fencing should be implemented along the watercourse side of the construction area prior to the commencement of any Site alteration.
    - Fencing should be properly keyed into the ground and securely fastened to vertical supports spaced ≤ 2 m apart.
    - All sediment fencing should be regularly maintained and kept in good working condition, until the area has been stabilized and/or successfully revegetated.
    - All ESC fencing should be removed following construction once exposed soils have been revegetated.
9. Machinery or construction materials should be stored within the construction area throughout the construction period.
10. Any subsequently identified SAR discovered on the property must be left undisturbed as required by the Endangered Species Act, 2007. If any SAR individuals are encountered, they should be photographed and allowed time to move out of harms way. All SAR observations should be reported to the MNRF Natural Heritage Information Centre.

8.0 Closing

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

Respectfully submitted,

Cambium Inc.

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Ecological Technologist/ ISA Arborist

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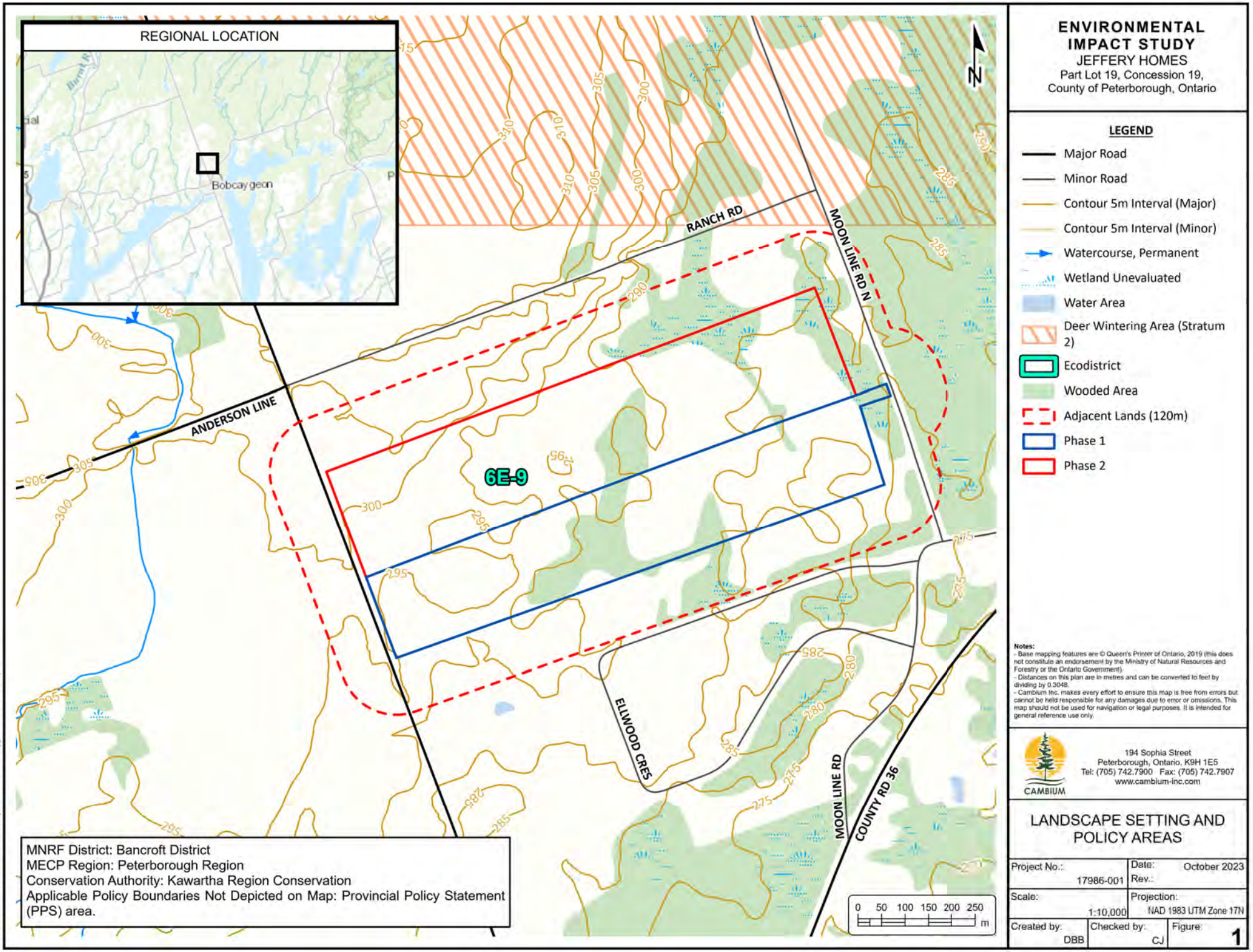
10.0 Glossary of Terms

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

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
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

JEFFERY HOMES
Part Lot 19, Concession 19,
County of Peterborough, Ontario

LEGEND

- Major Road
- Minor Road
- Contour 5m Interval (Major)
- Contour 5m Interval (Minor)
- Watercourse, Permanent
- Wetland Unevaluated
- Water Area
- Deer Wintering Area (Stratum 2)
- Ecodistrict
- Wooded Area
- Adjacent Lands (120m)
- Phase 1
- Phase 2

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

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LANDSCAPE SETTING AND POLICY AREAS

Project No.: 17986-001		Date: October 2023	
		Rev.:	
Scale: 1:10,000		Projection: NAD 1983 UTM Zone 17N	
Created by: DBB	Checked by: CJ	Figure:	1

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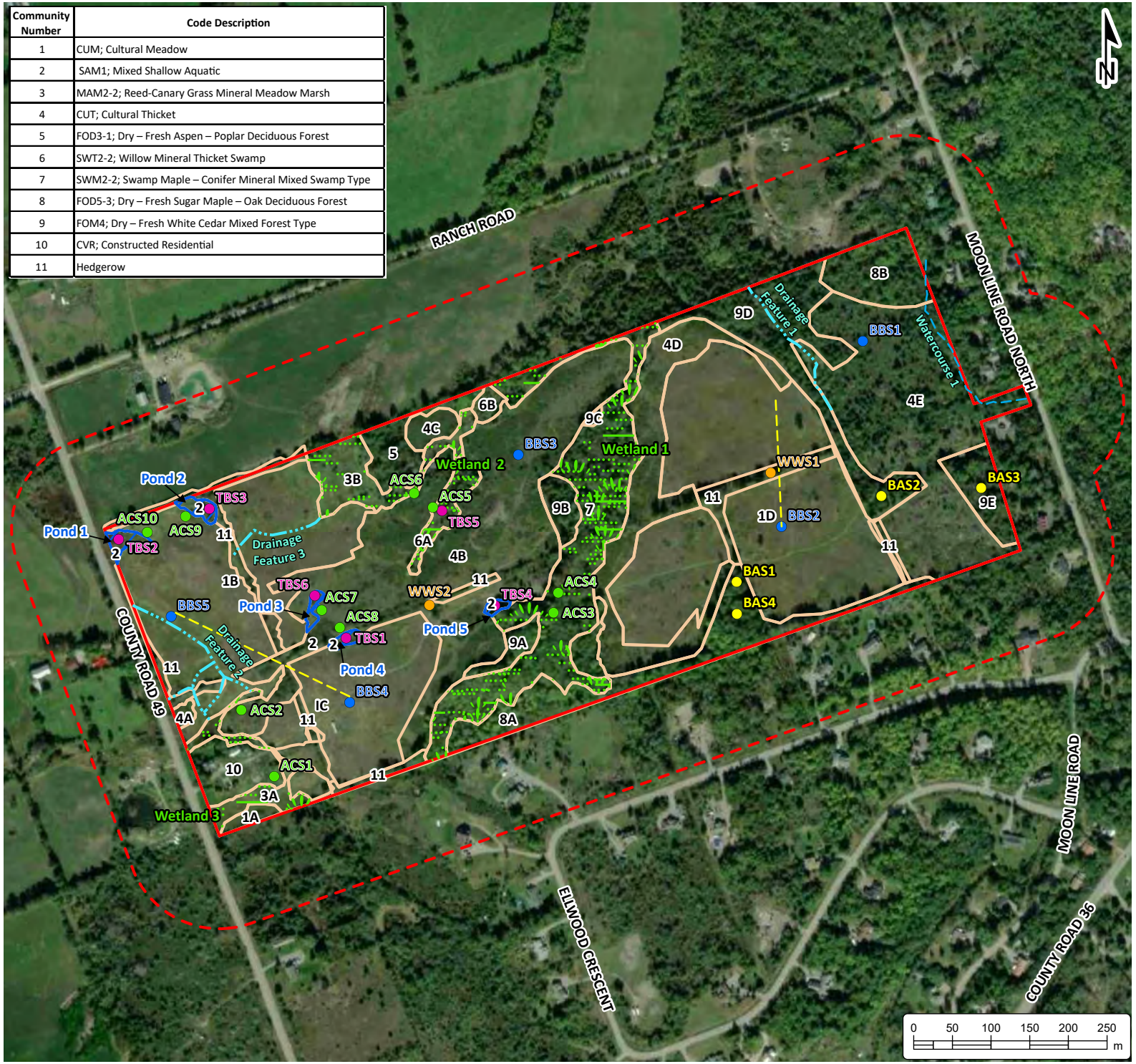
Community Number	Code Description
1	CUM; Cultural Meadow
2	SAM1; Mixed Shallow Aquatic
3	MAM2-2; Reed-Canary Grass Mineral Meadow Marsh
4	CUT; Cultural Thicket
5	FOD3-1; Dry – Fresh Aspen – Poplar Deciduous Forest
6	SWT2-2; Willow Mineral Thicket Swamp
7	SWM2-2; Swamp Maple – Conifer Mineral Mixed Swamp Type
8	FOD5-3; Dry – Fresh Sugar Maple – Oak Deciduous Forest
9	FOM4; Dry – Fresh White Cedar Mixed Forest Type
10	CVR; Constructed Residential
11	Hedgerow



ENVIRONMENTAL IMPACT STUDY

JEFFERY HOMES
Part Lot 19, Concession 19,
County of Peterborough, Ontario

LEGEND

- Amphibian Calling Station (ACS)
- Bat Acoustic Station (BAS)
- Breeding Bird Station (BBS)
- Turtle Basking Station (TBS)
- Whip-poor-will Station (WWS)
- Grassland Bird Survey Transect
- Drainage Channel
- Watercourse
- Field Verified Wetland
- Pond
- Vegetation Community
- Adjacent Lands (120m)
- Site (approximate)

Notes:
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NATURAL HERITAGE FEATURES AND ECOLOGICAL SURVEY STATIONS

Project No.: 17986-001		Date: October 2023	Rev.:
Scale: 1:7,000		Projection: NAD 1983 UTM Zone 17N	
Created by: DBB	Checked by: CJ	Figure: 2	

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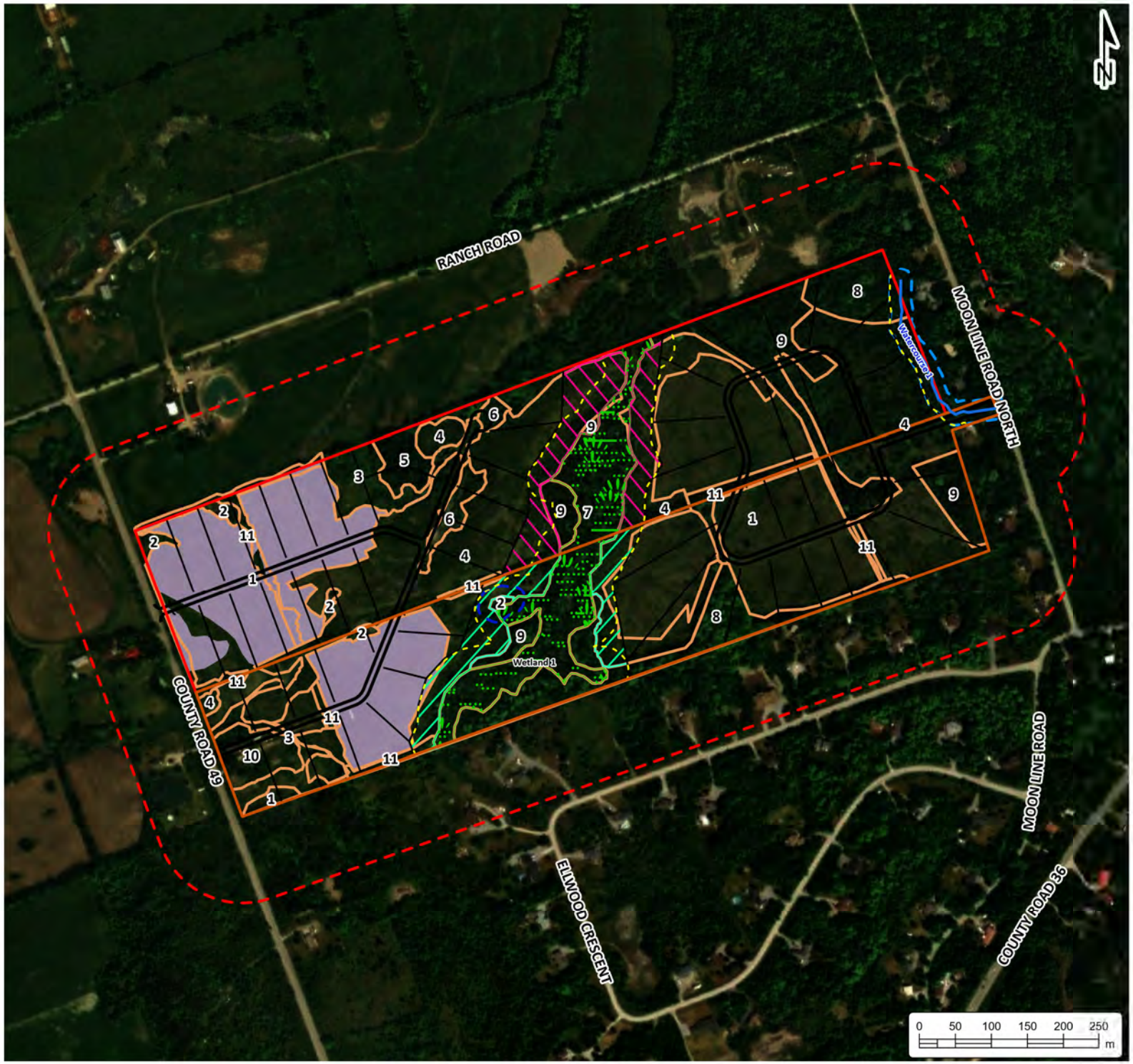

ENVIRONMENTAL IMPACT STUDY

JEFFERY HOMES
Part Lot 19, Concession 19,
County of Peterborough, Ontario

LEGEND

- Conceptual Development Limit
- Watercourse
- Lot Line
- Watercourse Setback (15m)
- SWH: Turtle Overwintering Setback (15m)
- Vegetation Community
- Field Verified Wetland
- Eastern Meadowlark Habitat
- Adjacent Lands (120m)
- Phase 1 Potential Buffer Enhancement Area
- Phase 2 Potential Buffer Enhancement Area
- Phase 1
- Phase 2

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

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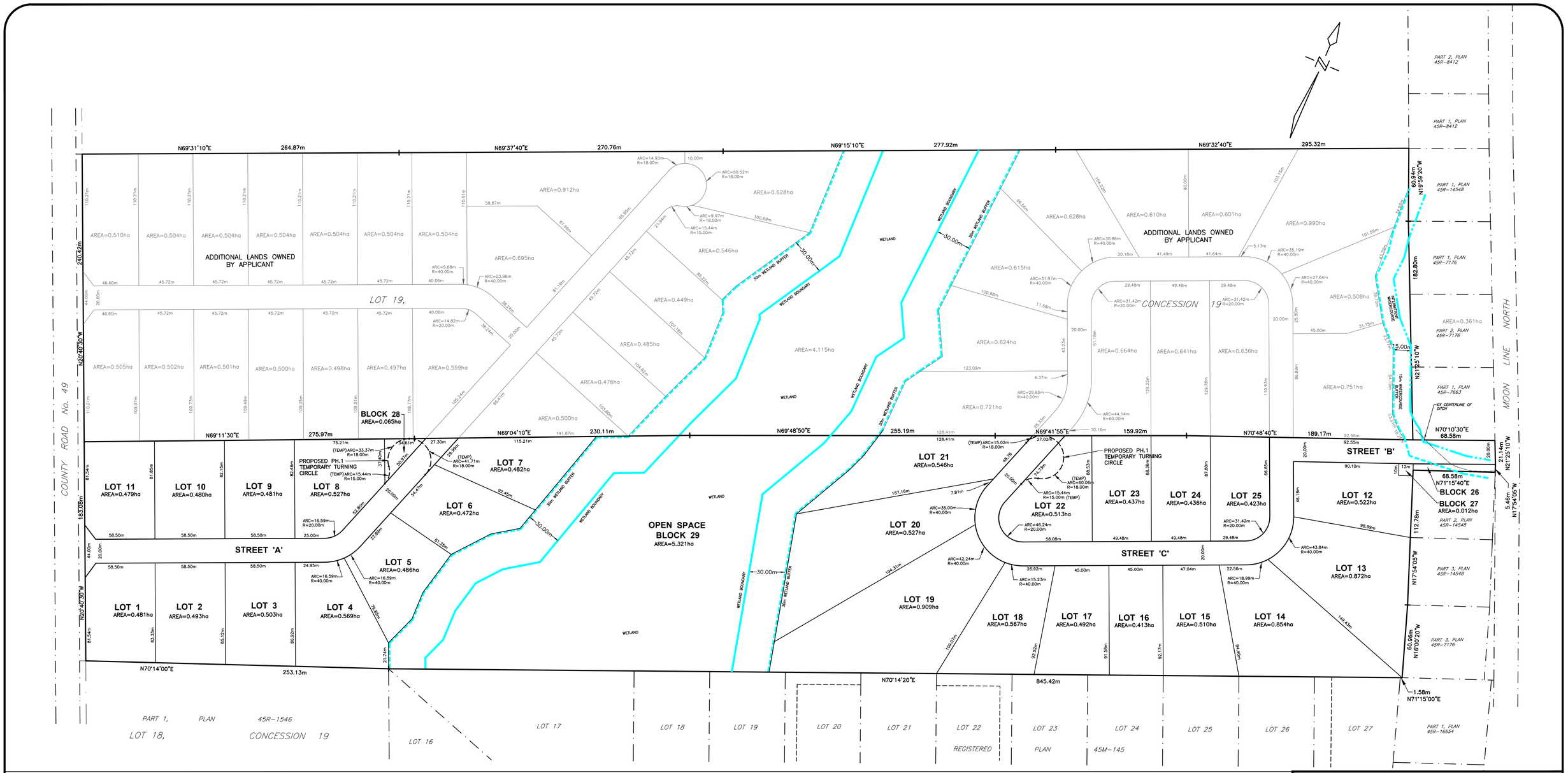
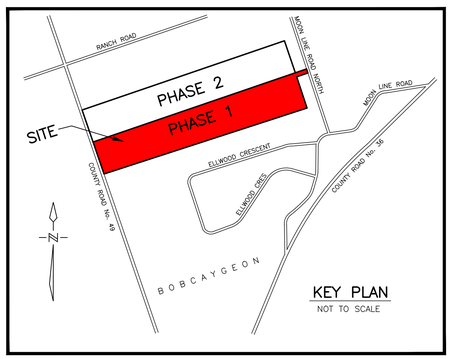
NATURAL HERITAGE CONSTRAINTS

Project No.: 17986-001		Date: October 2023 Rev.: April 2024	
Scale: 1:7,500		Projection: NAD 1983 UTM Zone 17N	
Created by: DBB	Checked by: CJ	Figure:	3A

O:\GIS\MXDs\17900-17999\17986-001 Jeffery Homes - EIS - Bobcaygeon\2023-10-04 EIS.aprx

Appendix A
Conceptual Site Plan





LAND USE SCHEDULE

PROPOSED USE	LOT/BLK #	# OF LOTS/BLKS	# OF UNITS	AREA (ha)
LOW DENSITY RESIDENTIAL				
SINGLE DETACHED	LOTS 1 – 25	25	25	14.475
NON RESIDENTIAL				
ROAD WIDENING	BLOCK 26	1		0.041
FIRE FIGHTING PROTECTION	BLOCK 27, 28	2		0.077
OPEN SPACE	BLOCK 29	1		5.321
ROADS	20.0m ROW			1.894
TOTALS		29	25	21.808

PLANSCAPE
BUILDING COMMUNITY THROUGH PLANNING

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 OF THE PLANNING ACT

F NORTH –OPEN SPACE
SOUTH –ESTATE RESIDENTIAL
EAST –ESTATE RESIDENTIAL
WEST –ESTATE RESIDENTIAL
H –WELL AND SEPTIC
I –TILL
K –PRIVATE WELL

OWNER'S AUTHORIZATION

I/WE LAND OWNER

BEING THE REGISTERED OWNER OF THE SUBJECT LANDS HEREBY AUTHORIZE

PLANSCAPE

TO PREPARE AND SUBMIT A DRAFT PLAN OF SUBDIVISION FOR APPROVAL

SIGNED *ORIGINALLY SIGNED BY: SCOTT JEFFERY*
TITLE

DATE *DECEMBER 21, 2022*

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARY OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN

ONTARIO LAND SURVEYOR
ONTARIO LAND SURVEYORS

SIGNED *ORIGINALLY SIGNED BY: MARYNA A. HANNA*
O.L.S

DATE *SEPTEMBER 2, 2022*

No.	REVISION	DATE	BY	APPROVED
1.	REVISED AS PER 1ST SUBMISSION COMMENTS	03/18/2024	MH	

REVISIONS

PROPOSED
DRAFT PLAN

PART OF LOT 19, CONCESSION 19
FORMERLY IN GEOGRAPHIC TOWNSHIP OF HARVEY
NOW IN THE
MUNICIPALITY OF TRENT LAKES
COUNTY OF PETERBOROUGH

D.G. BIDDLE & ASSOCIATES
CONSULTING ENGINEERS & PLANNERS
96 King Street East
Oshawa, Ontario, L1H 1B6
Phone: 905-576-8500
info@dgbiddle.com
dgbiddle.com

SCALE:	1:1500
DRAWN BY:	B.B.
DESIGN BY:	M.J.H.
CHECKED BY:	M.B.C.
PLOT DATE:	05/04/2024

122169

DP-1

X:\STAFF\JOB FILES\122000\122169 JEFFERY - BOBCAYGEON\122169 DRAWINGS CAD\122169 CONCEPTUAL DEVELOPMENT AND PRELIMINARY ENGINEERING\122169-DRAFT PLAN-PHASE 1-DP1.DWG

Appendix B

Species of Conservation Concern Screening

APPENDIX: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
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	Not identified through targetd surveys	No further consideration required
Black Tern	*Chlidonias niger*	No Status	SC	S3B	The Black Tern is a small waterbird with a forked tail, straight pointed bill, slender shape, and black head during breeding season. It builds floating nests in loose colonies in shallow marshes, with a preference for cattails. They breed primarily in the marshes along the edges of the Great Lakes, but may also use wetlands further north if suitable (1).	No	Known to occur in the general area	No further consideration required
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4B	The Bobolink is a mid-sized songbird of tan colour with black stripes, except for males during summer breeding season who are black with a white back and yellow collar. It prefers tall, grassy meadows, hayfields and some croplands, and feeds (largely on insects) on the ground in dense grasses (1). It tends to nest in forage crops: hayfields and pastures dominated by species including clover, bluegrass, and broadleaf plants (2).	Yes: on-site	Not identified through targetd surveys	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	Not identified through targetd 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	Confirmed absent through targeted surveys	No further consideration required

APPENDIX: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
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).	Yes: on-site	Confirmed habitat on-site through targeted surveys	Confirmed habitat for endangered or threatened species on-site
Eastern Whip-poor-will	*Antrostomus vociferus*	THR	THR	S4B	The Eastern Whip-poor-will is a medium-sized bird with mottled brown and grey feathers to blend in with its surroundings, a large flattened head, and small bill. They are usually found in areas with a mix of open and forested areas such as patchy forests with clearings, forests that are regenerating after major disturbances, savannahs, open woodlands or openings in more mature forests. Breeding habitat is dependent on forest structure rather than composition, although common tree associations are pine and oak, and it nests directly on the forest floor (2). The species prefers to nest in semi-open or patchy forests with clearings as it forages in open areas and uses forested areas for roosting (1).	Yes: on-site	Not identified through targetd surveys	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	Not identified through targetd surveys	No further consideration required
Evening Grosbeak	*Coccothraustes vespertinus*	SC	SC	S4B	The Evening Grosbeak is a large songbird with a thick greenish bill. It is a social bird that is often found in flocks, particularly during the winter months. Their preferred habitat is thick coniferous forest. During their breeding season, they are generally found in open, mature mixed forests dominated by Firs, White Spruce, or Trembling Aspen (1).	No	Known to occur in the general area	No further consideration required

APPENDIX: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
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).	Yes: on-site	Not identified through targetd surveys	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).	Yes: on-site	Not identified through targetd surveys	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
Loggerhead Shrike	*Lanius ludovicianus*	END	END	S2B	The Loggerhead Shrike is a small bird with a black, hooked bill, grey crown, and white throat and chest. This species has specific habitat requirements that are dependent on active livestock grazing, or grassland areas that have naturally short grass cover (i.e. alvar communities). They also require spiny, multi-branched shrubs, or barbed fencing, to catch prey. They prefer grassland habitats that have sporadic occurrences of low trees and shrubs; particularly hawthorn species, which are used as part of their feeding behaviour (1).	No	Known to occur in the general area	No further consideration required
Olive-sided Flycatcher	*Contopus cooperi*	THR	SC	S4B	The Olive-sided Flycatcher is a medium-sized songbird with olive colouring, often seen perching on top of tall trees waiting to catch their prey. It prefers open areas along natural mature forest edges, forest edges near natural openings such as rivers or swamps, human-made openings, or burned forest openings with numbers of dead trees. Breeding habitat usually consists of coniferous or mixed forests adjacent to rivers or wetlands, in Ontario often nesting in White and Black Spruce, Jack Pine, and Balsam Fir (1).	No	Known to occur in the general area	No further consideration required
Red-headed Woodpecker	*Melanerpes erythrocephalus*	END	END	S4B	The Red-headed Woodpecker is a mid-sized bird, at around 20 cm long, with a vivid red head, neck and breast as well a strong bill. The species can be found in open woodland and woodland edges, often near man-made landscapes such as parks, golf courses and cemeteries. These areas must contain a large number of dead trees for perching and nesting (1).	No	Known to occur in the general area	No further consideration required
Short-eared owl	*Asio flammeus*	SC	SC	S2N,S4B	The Short-eared Owl has a large round head with small tufts of feathers, long wings, a short tail, and cryptic colouring of brown streaks. This species is found in scattered pockets across the province where suitable open habitat, including grasslands, tundra, peat bogs and marsh, can be found in sufficient quantities. Adults build nests on the ground in grassy areas and occasionally agriultural fields (1). The main factor influencing their choice in habitat is believed to be an abundance of their food source, primarily rodents and other small mammals (2).	Yes: on-site	Not identified through targetd surveys	No further consideration required

APPENDIX: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
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	Not identified through targetd surveys	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
Northern Sunfish (Great Lakes - Upper St. Lawrence population)	*Lepomis peltastes*	SC	SC	S3	The Northern Sunfish is a small (about 130 mm long), typical looking member of the sunfish family (Centrarchidae). It has a deep, laterally compressed and olive coloured body with bright blue and red markings. In Ontario, the Northern Sunfish lives in shallow vegetated areas of quiet, slow flowing rivers and streams, as well as warm lakes and ponds, with sandy banks or rocky bottoms. Northern Sunfish prefer to be near aquatic vegetation where they can avoid strong currents. The Great Lakes - Upper St. Lawrence Populations are found throughout southern Ontario including waters flowing into Lake Huron, Georgian Bay, Lake St. Clair, Lake Erie and Lake Ontario, as well as rivers and small lakes in eastern Ontario (1).	No	Known to occur in the general area	No further consideration required
Herptiles								
Blanding's Turtle	*Emydoidea blandingii*	END	THR	S3	Blanding's Turtles are identifiable by their bright yellow throat and chin and domed shell. They spend the majority of their life cycle in the aquatic environment, usually in large wetlands or shallow lakes with high densities of water plants (1). These turtles prefer shallow, nutrient rich water with organic sediment and dense vegetation. They use terrestrial sites for travel between habitat patches and to lay clutches of eggs, often going hundreds of meters from their nearest water body. Blanding's Turtles nest in dry coniferous and mixed forest habitats, as well as fields and roadsides (2). From late October until the end of April, they hibernate in the mud at the bottom of permanent water bodies (1).	No	Not identified through targetd surveys	No further consideration required

APPENDIX: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
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	Not identified through targetd surveys	No further consideration required
Midland Painted Turtle	*Chrysemys picta marginata*	SC	-	S4	The Midland Painted Turtle has a olive to black carapace with red or dark orange markings on the marginal scutes, as well as red and yellow stripes on the head and neck. The species uses a variety of waterbodies including, ponds, marshes, lakes and slow-moving creeks with a soft bottom and an abundance of basking sites and aquatic vegetation. This species usually hibernates on the bottom of waterbodies (5).	Yes: on-site	Confirmed habitat on-site through targeted surveys	Confirmed significant wildlife habitat on-site
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	Not identified through targetd surveys	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	Confirmed habitat on-site through targeted surveys	Confirmed 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	Not identified through targetd surveys	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 of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
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	Confirmed habitat on-site through targeted surveys	Potential significant wildlife habitat on-site
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).	Yes: on-site	Confirmed habitat on-site through targeted surveys	Potential significant wildlife habitat on-site
Common Five-lined Skink (Southern Shield Population)	*Plestiodon fasciatus*	SC	SC	S3	The Common Five-lined Skink is Ontario's only lizard species. Its Southern Shield population can be found underneath rocks on open bedrock in forests and like to bask on sunny rocks and logs. They hibernate in crevices among rocks or buried in the soil (1). They hibernate in groups under rocks and tree stumps or in rotting wood (5).	No	Known to occur in the general area	No further consideration required
Western Chorus Frog	*Pseudacris triseriata*	THR	-	S3	The Western Chorus Frog is small with a dark stripe running through its eye and a light stripe underneath (5). It is primarily a lowland terrestrial species that requires access to terrestrial and aquatic habitats in close proximity to one another. Relying on marshes and wooded wetlands adjacent to forested habitats, this species also requires isolated, predator free pools for breeding. Temporary pools, such as vernal pools in wooded areas, are preferred. This species hibernates terrestrially in a variety of environments, including leaf litter, wood debris, and vacant animal burrows (2).	Yes: on-site	Not identified through targetd 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).	Yes: on-site	Incidental observation on-site	Potential significant wildlife habitat on-site
Mottled Duskywing	*Erynnis martialis*	No Status	END	S2	The Mottled Duskywing is a medium-sized butterfly in the skipper family with a wingspan of 25-42 mm. It is dark grey with yellow-brown spots on its hind wings that give the species its mottled appearance and its name. The wings of freshly emerged adults have a purplish iridescence that fades with age. The mottled duskywing tends to live in dry habitats with sparse vegetation. These include open barrens, sandy patches among woodlands, and alvars. In Ontario, the mottled duskywing will only deposit their eggs on two closely-related plants: New Jersey tea and prairie redroot (1).	No	Known to occur in the general area	No further consideration required
West Virginia White	*Pieris virginiensis*	No Status	SC	S3	The West Virginia White is a small, dingy white butterfly. This species is found in moist deciduous woods, and requires a supply of toothwort, a small, spring-blooming plant, which provides the only source of food for its larvae. The West Virginia White is found mostly in the central and southern parts of Ontario, but its range extends north to Manitoulin and St. Joseph islands (1).	No	Known to occur in the general area	No further consideration required

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COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
Yellow-banded Bumble Bee	*Bombus terricola*	SC	SC	S3S5	The Yellow-banded Bumble Bee is a medium-sized bumble bee with a distinct yellow and black abdominal band pattern found on its queens, males, and workers. This species is a forage and habitat generalist, able to use a variety of nectaring plants and environmental conditions. It can be found in mixed woodlands, particularly for nesting and overwintering, as well as a variety of open habitat such as native grasslands, farmlands and urban areas. The Yellow-banded Bumble Bee ranges from the Mixedwood Plains of southern Ontario to the Hudson Bay Lowlands in the north (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential significant wildlife habitat on-site
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	Not identified through targetd surveys	No further consideration required
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	Not identified through targetd surveys	No further consideration required
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	Confirmed habitat on-site through targeted surveys	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	Not identified through targetd surveys	No further consideration required
Algonquin Wolf	*Canis lycaon*	SC	THR	S4	Formerly called the Eastern Wolf, this canine was recently renamed the Algonquin Wolf. In the southern portion of the province, this species prefers deciduous and mixed forest landscapes while their northern range include mixed and coniferous forests. It is most prevalent in areas with abundant prey species which include Beaver, White-tailed Deer and Moose. Dens sites are usually found in coniferous forests with easily excavated soil types like sand and close to a permanent water source (1).	No	Known to occur in the general area	No further consideration required
Trees, plants, fungi and lichens								

APPENDIX: Species of Conservation Concern - County of Peterborough

COMMON NAME	SCIENTIFIC NAME	Federal	Provincial		SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
		SARA	SARO	S-RANK				
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).	Yes: on-site	Not identified through targetd surveys	No further consideration required
Black Ash	*Fraxinus nigra*	No status	END	S4	The Black Ash is a smaller-sized tree with a narrow crown, light grey and scaly bark, and green, oval leaflets on a central stalk. It grows everywhere in Ontario except for the far north, preferring moist climates and soils such as swampy woodlands or bogs (1).	Yes: on-site	Incidental observation on-site	Confirmed habitat for endangered or threatened species on-site
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	Not identified through targetd surveys	No further consideration required
Pale-bellied Frost Lichen	*Physconia subpallida*	END	END	S3	The Pale-bellied Frost Lichen resembles a light dusting of frost on a dark tree trunk. This species is found throughout eastern North America, growing in wooded areas rich in hardwood species, such as White Ash, Hop Hornbeam (Ironwood), Black Walnut, and American Elm. It is also common to find this species growing on fenceposts or boulders within or near these wooded areas. In Ontario, this species has been found in the following counties: Frontenac, Haliburton, Hastings, Peterborough, Lanark and Renfrew (1).	Yes: on-site	Not identified through targetd surveys	No further consideration required

References

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2. Government of Canada. (2021). Species at Risk Public Registry. Retrieved from https://species-registry.canada.ca/index-en.html#/species?ranges=5&sortBy=commonNameSort&sortDirection=asc&pageSize=10
3. Committee on the Status of Endangered Wildlife in Canada. (2008).
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5. Ontario Nature. (2020). Reptiles and Amphibians. Retrieved from https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/species/
6. University of Michigan Museum of Zoology. (2004).

Appendix C
Photographic Log

Photo 1 ELC Community 1 (CUM), May 2023.

Photo 2 ELC Community 1 (CUM), September 2023.

Photo 3 ELC Community 2 (SAM1) (Pond 1), May 2023.

Photo 4 ELC Community 2 (SAM1) (Pond 1), July 2023.

Photo 5 ELC Community 2 (SAM1)* (Pond 1), *September 2023.

Photo 6 ELC Community 3 (MAM2-2), May 2023.

Photo 7 ELC Community 3 (MAM2-2), September 2023.

Photo 8 ELC Community 4 (CUT), May 2023.

Photo 9 ELC Community 4 (CUT), July 2023.

Photo 10 ELC Community 4 (CUT), September 2023.

Photo 11 ELC Community 5 (FOD3-1), May 2023.

Photo 12 ELC Community 5 (FOD3-1), July 2023.

Photo 13 ELC Community 5 (FOD3-1), September 2023.

Photo 14 ELC Community 6 (SWT2-2), May 2023.

Photo 15 ELC Community 6 (SWT2-2), July 2023.

Photo 16 ELC Community 6 (SWT2-2), September 2023.

Photo 17 ELC Community 7 (SWM2-2), May 2023.

Photo 18 ELC Community 7 (SWM2-2), July 2023

Photo 19 ELC Community 7 (SWM2-2), September 2023

Photo 20 ELC Community 8 (FOD5-3), May 2023.

Photo 21 ELC Community 8 (FOD5-3), July 2023.

Photo 22 ELC Community 8 (FOD5-3), July 2023.

Photo 23 ELC Community 9 (FOM7), May 2023.

Photo 24 ELC Community 9 (FOM7), July 2023.

Photo 25 ELC Community 9 (FOM7), September 2023.

Photo 26 BBS1, May 2023

Photo 27 BBS2, May 2023

Photo 28 BBS3, May 2023

Photo 29 BBS4, June 2023

Photo 30 BBS5, June 2023

Photo 31 Grassland Breeding Bird Survey #1 Transect Area, May 2023

Photo 32 Eastern Meadowlark Observed During Grassland Breeding Bird Survey #2, June 08, 2023

Photo 33 Grassland Breeding Bird Survey #2 Transect Area, June 15, 2023

Appendix D

Vegetation Species List

Appendix - Vegetation Community and Inventory

#	Common Name (Latin Name)	Vegetation Community									CoW
		1	2	3	4	5	6	7	8	9	
2	(Acer rubrum X Acer saccharinum) (Acer x freemanii)							D			-5
3	Alfalfa (Medicago sativa)	X			X						5
4	American Black Currant (Ribes americanum)							X			-3
5	American Hog-peanut (Amphicarpaea bracteata)								X		0
6	American Water-horehound (Lycopus americanus)			X							-5
7	Awl-fruited Sedge (Carex stipata)			X							-5
8	Balsam Fir (Abies balsamea)							X		X	-3
9	Balsam Poplar (Populus balsamifera)				X					X	-3
10	Basswood (Tilia americana)					X			X	A	3
11	Bearded Sedge (Carex comosa)		X					X			-5
12	Bebb's Willow (Salix bebbiana)			X			X				-3
13	Bittersweet Nightshade (Solanum dulcamara)			X			X	X			0
14	Black Ash (Fraxinus nigra)							X			-3
15	Black Medick (Medicago lupulina)	X			X				X		3
16	Black Willow (Salix nigra)						X				-5
17	Black-eyed Susan (Rudbeckia hirta)	X			X						3
18	Bracken Fern (Pteridium aquilinum)									X	3
19	Broad-leaved Cattail (Typha latifolia)		A	A			X	X			-5
20	Broad-leaved Enchanter's Nightshade (Circaea canadensis)								X	X	3
21	Broad-leaved Helleborine (Epipactis helleborine)					X				X	3
22	Brome-like Sedge (Carex bromoides)							X			-3
23	Calico Aster (Symphyotrichum lateriflorum)					X		X			0
24	Canada Goldenrod (Solidago canadensis)	X		X	X	X			X		3
25	Canada Mint (Mentha canadensis)			X							-3
26	Canada Thistle (Cirsium arvense)			X							3
27	Canada Wild-ginger (Asarum canadense)									X	5
28	Catnip (Nepeta cataria)	X									3
29	Chokecherry (Prunus virginiana)					X			X		3
30	Cinnamon Fern (Osmundastrum cinnamomeum)							X			-3
31	Common Apple (Malus pumila)			X		X					5
32	Common Bedstraw (Galium aparine)				X	X					3
33	Common Boneset (Eupatorium perfoliatum)			X			X				-3
34	Common Buttercup (Ranunculus acris)			X		X			X		0
35	Common Dandelion (Taraxacum officinale)			X	X	X					3
36	Common Hemp-nettle (Galeopsis tetrahit)			X							3
37	Common Juniper (Juniperus communis)	X		X	D	A			X	X	3
38	Common Marsh Bedstraw (Galium palustre)			X				X			-5
39	Common Milkweed (Asclepias syriaca)	X		X	X						5
40	Common Mullein (Verbascum thapsus)	X									5
41	Common Self-heal (Prunella vulgaris)			X		X			X	X	0
42	Common St. John's-wort (Hypericum perforatum)				X	X					5
43	Common Timothy (Phleum pratense)	X			X						3
44	Common Viper's Bugloss (Echium vulgare)	X									5
45	Common Water-parsnip (Sium suave)		X					X			-5

Appendix - Vegetation Community and Inventory

#	Common Name (Latin Name)	Vegetation Community									CoW
		1	2	3	4	5	6	7	8	9	
46	Common Yarrow (Achillea millefolium)	X			X						3
47	Curly-leaved Pondweed (Potamogeton crispus)		D								-5
48	Cyperus-like Sedge (Carex pseudocyperus)							X			-5
49	Dark-green Bulrush (Scirpus atrovirens)		X	X							-5
50	Downy Yellow Violet (Viola pubescens var. pubescens)					X			X		3
51	Dwarf Raspberry (Rubus pubescens)							X			-3
52	Early Meadow-rue (Thalictrum dioicum)								X		3
53	Eastern Hop-hornbeam (Ostrya virginiana)					X			X	A	3
54	Eastern Marsh Fern (Thelypteris palustris var. pubescens)							X			-3
55	Eastern Prickly Gooseberry (Ribes cynosbati)					X			X		3
56	Eastern Red Cedar (Juniperus virginiana)	X			X	X				X	3
57	Eastern White Cedar (Thuja occidentalis)					X	X	A		D	-3
58	Eastern White Pine (Pinus strobus)									X	3
59	Eurasian Black Bindweed (Fallopia convolvulus)	X			X						3
60	European Buckthorn (Rhamnus cathartica)	X		X	X	X	X	X	X	X	0
61	European Gromwell (Lithospermum officinale)	X									5
62	European Mountain-ash (Sorbus aucuparia)							X			5
63	Field Sow-thistle (Sonchus arvensis)	X		X							3
64	Fowl Mannagrass (Glyceria striata)							X			-5
65	Fox Sedge (Carex vulpinoidea)			X							-5
66	Garden Bird's-foot Trefoil (Lotus corniculatus)	X									3
67	Goldthread (Coptis trifolia)									X	-3
68	Grass-leaved Goldenrod (Euthamia graminifolia)	X		X							0
69	Hairy Willow (Salix vestita)						X				0
70	Hairy Willowherb (Epilobium hirsutum)			X				X			-3
71	Heart-leaved Aster (Symphyotrichum cordifolium)	X			X	X			X		5
72	Hop Sedge (Carex lupulina)							X			-5
73	Large False Solomon's Seal (Maianthemum racemosum)								X		3
74	Large-flowered Bellwort (Uvularia grandiflora)								X		5
75	Large-leaved Aster (Eurybia macrophylla)					X			X		5
76	Licorice Bedstraw (Galium circaezans)								X		3
77	Loesel's Twayblade (Liparis loeselii)							X			-3
78	Long-stalked Sedge (Carex pedunculata)					X			X	X	3
79	Manitoba Maple (Acer negundo)			X							0
80	Marsh Horsetail (Equisetum palustre)			X							-3
81	Marsh Willowherb (Epilobium palustre)			X				X			-5
82	Meadow Hawkweed (Pilosella caespitosa)	X			X						5
83	Multiflora Rose (Rosa multiflora)				X						3
84	Narrow-leaved Cattail (Typha angustifolia)		X	X			X	X			-5
85	New England Aster (Symphyotrichum novae-angliae)	X		X	X				X		-3
86	Nodding Beggarticks (Bidens cernua)							X			-5
87	Northern Maidenhair Fern (Adiantum pedatum)							X			3
88	Northern Red Oak (Quercus rubra)								A	X	3
89	Northern Water-horehound (Lycopus uniflorus)							X			-5

Appendix - Vegetation Community and Inventory

#	Common Name (Latin Name)	Vegetation Community									CoW
		1	2	3	4	5	6	7	8	9	
90	Northern Water-plantain (Alisma triviale)		X					X			-5
91	Northern Willowherb (Epilobium ciliatum)							X			-3
92	Orange Hawkweed (Pilosella aurantiaca)	X			X						5
93	Orchard Grass (Dactylis glomerata)	A			A				X		3
94	Oxeye Daisy (Leucanthemum vulgare)				X						5
95	Panicled Aster (Symphyotrichum lanceolatum)			X			X	X			-3
96	Paper Birch (Betula papyrifera)							X		X	3
97	Philadelphia Fleabane (Erigeron philadelphicus)	X									-3
98	Poison Ivy (Toxicodendron radicans)				X	X				X	0
99	Purple Willow (Salix purpurea)			X							-3
100	Purple-flowering Raspberry (Rubus odoratus)	X			X						5
101	Purple-stemmed Aster (Symphyotrichum puniceum)			X			X	X			-5
102	Purple-stemmed Beggarticks (Bidens connata)							X			-3
103	Purple-veined Willowherb (Epilobium coloratum)			X							-5
104	Pussy Willow (Salix discolor)			X			A				-3
105	Red Ash (Fraxinus pennsylvanica)							A	X		-3
106	Red Clover (Trifolium pratense)	X			X				X		3
107	Red Fescue (Festuca rubra)	A		X	A						3
108	Red Maple (Acer rubrum)							X			0
109	Red Pine (Pinus resinosa)									X	3
110	Red Raspberry (Rubus idaeus)	X			X						3
111	Red-osier Dogwood (Cornus sericea)		X	X			X	X			-3
112	Redtop (Agrostis gigantea)	X	X		X						-3
113	Reed Canarygrass (Phalaris arundinacea)		A	D			X	X			-3
114	Retrorse Sedge (Carex retrorsa)			X							-5
115	Riverbank Grape (Vitis riparia)	X		X	X	X			X	X	0
116	Rough-stemmed Goldenrod (Solidago rugosa)								X		0
117	Sandbar Willow (Salix interior)			X			D				-3
118	Sensitive Fern (Onoclea sensibilis)						X	X			-3
119	Shagbark Hickory (Carya ovata)								X	A	3
120	Silver Maple (Acer saccharinum)						X	A			-3
121	Slender Mountain-mint (Pycnanthemum tenuifolium)							X			0
122	Small Duckweed (Lemna minor)		X					X			-5
123	Smooth Bedstraw (Galium mollugo)								X		5
124	Smooth Brome (Bromus inermis)	D		X	X						5
125	Soft Rush (Juncus effusus)			X							-5
126	Spinulose Wood Fern (Dryopteris carthusiana)							X		X	-3
127	Spotted Jewelweed (Impatiens capensis)			X				X			-3
128	Spotted Joe Pye Weed (Eutrochium maculatum)			A			X				-5
129	Spreading Dogbane (Apocynum androsaemifolium)	X			X				X		5
130	Staghorn Sumac (Rhus typhina)				X						3
131	Star-flowered False Solomon's Seal (Maianthemum stellatum)			X							0
132	Sugar Maple (Acer saccharum)					A			D	A	3
133	Sulphur Cinquefoil (Potentilla recta)	X									5

Appendix - Vegetation Community and Inventory

#	Common Name (Latin Name)	Vegetation Community									CoW
		1	2	3	4	5	6	7	8	9	
134	Tall Anemone (Anemone virginiana)								X		3
135	Tall Meadow-rue (Thalictrum pubescens)								X		-3
136	Trembling Aspen (Populus tremuloides)		X		X	D				X	0
137	Tufted Vetch (Vicia cracca)	X		X	X						5
138	Tussock Sedge (Carex stricta)							X			-5
139	Virginia Creeper (Parthenocissus quinquefolia)			X	X	X				X	3
140	Water Smartweed (Persicaria amphibia)		X								-5
141	Water Speedwell (Veronica anagallis-aquatica)			X							-5
142	White Ash (Fraxinus americana)					X			X	X	3
143	White Clover (Trifolium repens)	X			X						3
144	White Elm (Ulmus americana)					X	X	A	X	X	-3
145	White Heath Aster (Symphyotrichum ericoides)	X			X	X					3
146	White Spruce (Picea glauca)					X	X			X	3
147	White Sweet-clover (Melilotus albus)	X			X						3
148	White Trillium (Trillium grandiflorum)								X		3
149	White Willow (Salix alba)						A				-3
150	Wild Carrot (Daucus carota)	X		X							5
151	Wild Chicory (Cichorium intybus)	X									5
152	Wild Sarsaparilla (Aralia nudicaulis)								X		3
153	Wild Strawberry (Fragaria virginiana)				X	X			X		3
154	Yellow Goatsbeard (Tragopogon dubius)	X			X						5
155	Yellow Marsh Marigold (Caltha palustris)			X			X				-5
156	Yellow Sweet-clover (Melilotus officinalis)	X			X						3
157	Yellow Trout-lily (Erythronium americanum)								X		5
158	Yellow Water Buttercup (Ranunculus flabellaris)							X			-5
159	Zigzag Goldenrod (Solidago flexicaulis)								X		3

Appendix - Vegetation Species Significance and Status

#	Common Name (Scientific Name)	Rarity/Status[2]			CoC
		National	Provincial		
		SARA	SARO	S-Rank	
2	(Acer rubrum X Acer saccharinum) (Acer x freemanii)			SNA	6
3	Alfalfa (Medicago sativa)			SNA	0
4	American Black Currant (Ribes americanum)			S5	4
5	American Hog-peanut (Amphicarpaea bracteata)			S5	4
6	American Water-horehound (Lycopus americanus)			S5	4
7	Awl-fruited Sedge (Carex stipata)			S5	3
8	Balsam Fir (Abies balsamea)			S5	5
9	Balsam Poplar (Populus balsamifera)			S5	4
10	Basswood (Tilia americana)			S5	4
11	Bearded Sedge (Carex comosa)			S5	5
12	Bebb's Willow (Salix bebbiana)			S5	4
13	Bittersweet Nightshade (Solanum dulcamara)			SNA	0
14	Black Ash (Fraxinus nigra)		END	S3	7
15	Black Medick (Medicago lupulina)			SNA	0
16	Black Willow (Salix nigra)			S4	6
17	Black-eyed Susan (Rudbeckia hirta)			S5	0
18	Bracken Fern (Pteridium aquilinum)			S5	2
19	Broad-leaved Cattail (Typha latifolia)			S5	1
20	Broad-leaved Enchanter's Nightshade (Circaea canadensis)			S5	2
21	Broad-leaved Helleborine (Epipactis helleborine)			SNA	0
22	Brome-like Sedge (Carex bromoides)			S5	7
23	Calico Aster (Symphyotrichum lateriflorum)			S5	3
24	Canada Goldenrod (Solidago canadensis)			S5	1
25	Canada Mint (Mentha canadensis)			S5	3
26	Canada Thistle (Cirsium arvense)			SNA	0
27	Canada Wild-ginger (Asarum canadense)			S5	6
28	Catnip (Nepeta cataria)			SNA	0
29	Chokecherry (Prunus virginiana)			S5	2
30	Cinnamon Fern (Osmundastrum cinnamomeum)			S5	7
31	Common Apple (Malus pumila)			SNA	0
32	Common Bedstraw (Galium aparine)			S5	4
33	Common Boneset (Eupatorium perfoliatum)			S5	2
34	Common Buttercup (Ranunculus acris)			SNA	0
35	Common Dandelion (Taraxacum officinale)			SNA	0
36	Common Hemp-nettle (Galeopsis tetrahit)			SNA	0
37	Common Juniper (Juniperus communis)			S5	4
38	Common Marsh Bedstraw (Galium palustre)			S5	5
39	Common Milkweed (Asclepias syriaca)			S5	0
40	Common Mullein (Verbascum thapsus)			SNA	0
41	Common Self-heal (Prunella vulgaris)			S5	0
42	Common St. John's-wort (Hypericum perforatum)			SNA	0

Appendix - Vegetation Species Significance and Status

#	Common Name (Scientific Name)	Rarity/Status[2]			CoC
		National	Provincial		
		SARA	SARO	S-Rank	
43	Common Timothy (Phleum pratense)			SNA	0
44	Common Viper's Bugloss (Echium vulgare)			SNA	0
45	Common Water-parsnip (Sium suave)			S5	4
46	Common Yarrow (Achillea millefolium)			SNA	0
47	Curly-leaved Pondweed (Potamogeton crispus)			SNA	0
48	Cyperus-like Sedge (Carex pseudocyperus)			S5	6
49	Dark-green Bulrush (Scirpus atrovirens)			S5	3
50	Downy Yellow Violet (Viola pubescens var. pubescens)			S5	5
51	Dwarf Raspberry (Rubus pubescens)			S5	4
52	Early Meadow-rue (Thalictrum dioicum)			S5	6
53	Eastern Hop-hornbeam (Ostrya virginiana)			S5	4
54	Eastern Marsh Fern (Thelypteris palustris var. pubescens)			S5	5
55	Eastern Prickly Gooseberry (Ribes cynosbati)			S5	4
56	Eastern Red Cedar (Juniperus virginiana)			S5	4
57	Eastern White Cedar (Thuja occidentalis)			S5	4
58	Eastern White Pine (Pinus strobus)			S5	4
59	Eurasian Black Bindweed (Fallopia convolvulus)			SNA	0
60	European Buckthorn (Rhamnus cathartica)			SNA	0
61	European Gromwell (Lithospermum officinale)			SNA	0
62	European Mountain-ash (Sorbus aucuparia)			SNA	0
63	Field Sow-thistle (Sonchus arvensis)			SNA	0
64	Fowl Mannagrass (Glyceria striata)			S5	3
65	Fox Sedge (Carex vulpinoidea)			S5	3
66	Garden Bird's-foot Trefoil (Lotus corniculatus)			SNA	0
67	Goldthread (Coptis trifolia)			S5	7
68	Grass-leaved Goldenrod (Euthamia graminifolia)			S5	2
69	Hairy Willow (Salix vestita)			S4	0
70	Hairy Willowherb (Epilobium hirsutum)			SNA	0
71	Heart-leaved Aster (Symphyotrichum cordifolium)			S5	5
72	Hop Sedge (Carex lupulina)			S5	6
73	Large False Solomon's Seal (Maianthemum racemosum)			S5	4
74	Large-flowered Bellwort (Uvularia grandiflora)			S5	6
75	Large-leaved Aster (Eurybia macrophylla)			S5	5
76	Licorice Bedstraw (Galium circaezans)			S5	7
77	Loesel's Twayblade (Liparis loeselii)			S4S5	5
78	Long-stalked Sedge (Carex pedunculata)			S5	5
79	Manitoba Maple (Acer negundo)			S5	0
80	Marsh Horsetail (Equisetum palustre)			S5	10
81	Marsh Willowherb (Epilobium palustre)			S5	10
82	Meadow Hawkweed (Pilosella caespitosa)			SNA	0
83	Multiflora Rose (Rosa multiflora)			SNA	0

Appendix - Vegetation Species Significance and Status

#	Common Name (Scientific Name)	Rarity/Status[2]			CoC
		National	Provincial		
		SARA	SARO	S-Rank	
84	Narrow-leaved Cattail (Typha angustifolia)			SNA	0
85	New England Aster (Symphyotrichum novae-angliae)			S5	2
86	Nodding Beggarticks (Bidens cernua)			S5	2
87	Northern Maidenhair Fern (Adiantum pedatum)			S5	7
88	Northern Red Oak (Quercus rubra)			S5	6
89	Northern Water-horehound (Lycopus uniflorus)			S5	5
90	Northern Water-plantain (Alisma triviale)			S5	1
91	Northern Willowherb (Epilobium ciliatum)			S5	3
92	Orange Hawkweed (Pilosella aurantiaca)			SNA	0
93	Orchard Grass (Dactylis glomerata)			SNA	0
94	Oxeye Daisy (Leucanthemum vulgare)			SNA	0
95	Panicled Aster (Symphyotrichum lanceolatum)			S5	3
96	Paper Birch (Betula papyrifera)			S5	2
97	Philadelphia Fleabane (Erigeron philadelphicus)			S5	1
98	Poison Ivy (Toxicodendron radicans)			S5	2
99	Purple Willow (Salix purpurea)			SNA	0
100	Purple-flowering Raspberry (Rubus odoratus)			S5	3
101	Purple-stemmed Aster (Symphyotrichum puniceum)			S5	6
102	Purple-stemmed Beggarticks (Bidens connata)			S4?	5
103	Purple-veined Willowherb (Epilobium coloratum)			S5	3
104	Pussy Willow (Salix discolor)			S5	3
105	Red Ash (Fraxinus pennsylvanica)			S4	3
106	Red Clover (Trifolium pratense)			SNA	0
107	Red Fescue (Festuca rubra)			S5	0
108	Red Maple (Acer rubrum)			S5	4
109	Red Pine (Pinus resinosa)			S5	8
110	Red Raspberry (Rubus idaeus)			S5	2
111	Red-osier Dogwood (Cornus sericea)			S5	2
112	Redtop (Agrostis gigantea)			SNA	0
113	Reed Canarygrass (Phalaris arundinacea)			S5	0
114	Retrorse Sedge (Carex retrorsa)			S5	5
115	Riverbank Grape (Vitis riparia)			S5	0
116	Rough-stemmed Goldenrod (Solidago rugosa)			S5	4
117	Sandbar Willow (Salix interior)			S5	1
118	Sensitive Fern (Onoclea sensibilis)			S5	4
119	Shagbark Hickory (Carya ovata)			S5	6
120	Silver Maple (Acer saccharinum)			S5	5
121	Slender Mountain-mint (Pycnanthemum tenuifolium)			S3	8
122	Small Duckweed (Lemna minor)			S5?	5
123	Smooth Bedstraw (Galium mollugo)			SNA	0
124	Smooth Brome (Bromus inermis)			SNA	0

Appendix - Vegetation Species Significance and Status

#	Common Name (Scientific Name)	Rarity/Status[2]			CoC
		National	Provincial		
		SARA	SARO	S-Rank	
125	Soft Rush (Juncus effusus)			S5	4
126	Spinulose Wood Fern (Dryopteris carthusiana)			S5	5
127	Spotted Jewelweed (Impatiens capensis)			S5	4
128	Spotted Joe Pye Weed (Eutrochium maculatum)			S5	3
129	Spreading Dogbane (Apocynum androsaemifolium)			S5	3
130	Staghorn Sumac (Rhus typhina)			S5	1
131	Star-flowered False Solomon's Seal (Maianthemum stellatum)			S5	6
132	Sugar Maple (Acer saccharum)			S5	4
133	Sulphur Cinquefoil (Potentilla recta)			SNA	0
134	Tall Anemone (Anemone virginiana)			S5	4
135	Tall Meadow-rue (Thalictrum pubescens)			S5	5
136	Trembling Aspen (Populus tremuloides)			S5	2
137	Tufted Vetch (Vicia cracca)			SNA	0
138	Tussock Sedge (Carex stricta)			S5	4
139	Virginia Creeper (Parthenocissus quinquefolia)			S4?	6
140	Water Smartweed (Persicaria amphibia)			S5	5
141	Water Speedwell (Veronica anagallis-aquatica)			SNA	0
142	White Ash (Fraxinus americana)			S4	4
143	White Clover (Trifolium repens)			SNA	0
144	White Elm (Ulmus americana)			S5	3
145	White Heath Aster (Symphyotrichum ericoides)			S5	4
146	White Spruce (Picea glauca)			S5	6
147	White Sweet-clover (Melilotus albus)			SNA	0
148	White Trillium (Trillium grandiflorum)			S5	5
149	White Willow (Salix alba)			SNA	0
150	Wild Carrot (Daucus carota)			SNA	0
151	Wild Chicory (Cichorium intybus)			SNA	0
152	Wild Sarsaparilla (Aralia nudicaulis)			S5	4
153	Wild Strawberry (Fragaria virginiana)			S5	2
154	Yellow Goatsbeard (Tragopogon dubius)			SNA	0
155	Yellow Marsh Marigold (Caltha palustris)			S5	5
156	Yellow Sweet-clover (Melilotus officinalis)			SNA	0
157	Yellow Trout-lily (Erythronium americanum)			S5	5
158	Yellow Water Buttercup (Ranunculus flabellaris)			S4	7
159	Zigzag Goldenrod (Solidago flexicaulis)			S5	6

Appendix E

Bird Species List

Appendix E - Avifauna Observations

Common name	Scientific name	Station	Breeding Code	COSEWIC	SARO	S-Rank	Date
American Crow	Corvus brachyrhynchos	2	S	0	0	S5B	2023-05-31
American Crow	Corvus brachyrhynchos	4	S	0	0	S5B	2023-05-31
American Crow	Corvus brachyrhynchos	5	S	0	0	S5B	2023-05-31
American Goldfinch	Spinus tristis	2	S	0	0	S5B	2023-05-31
American Goldfinch	Spinus tristis	3	S	0	0	S5B	2023-05-31
American Goldfinch	Spinus tristis	5	S	0	0	S5B	2023-05-31
American Redstart	Setophaga ruticilla	1	S	0	0	S5B	2023-05-31
American Robin	Turdus migratorius	1	S	0	0	S5B	2023-05-31
American Robin	Turdus migratorius	4	S	0	0	S5B	2023-05-31
American Robin	Turdus migratorius	5	S	0	0	S5B	2023-05-31
Black-and-white Warbler	Mniotilta varia	1	S	0	0	S5B	2023-05-31
Black-and-white Warbler	Mniotilta varia	2	S	0	0	S5B	2023-05-31
Black-and-white Warbler	Mniotilta varia	3	S	0	0	S5B	2023-05-31
Black-capped Chickadee	Poecile atricapillus	4	S	0	0	S5	2023-05-31
Blue Jay	Cyanocitta cristata	1	S	0	0	S5	2023-05-31
Blue Jay	Cyanocitta cristata	3	S	0	0	S5	2023-05-31
Blue Jay	Cyanocitta cristata	4	S	0	0	S5	2023-05-31
Cedar Waxwing	Bombycilla cedrorum	1	S	0	0	S5B	2023-05-31
Cedar Waxwing	Bombycilla cedrorum	2	S	0	0	S5B	2023-05-31
Cedar Waxwing	Bombycilla cedrorum	3	S	0	0	S5B	2023-05-31
Cedar Waxwing	Bombycilla cedrorum	4	S	0	0	S5B	2023-05-31
Common Grackle	Quiscalus quiscula	4	H	0	0	S5B	2023-05-31
Common Yellowthroat	Geothlypis trichas	5	S	0	0	S5B	2023-05-31
Eastern Bluebird	Sialia sialis	5	S	NAR	NAR	S5B	2023-05-31
Eastern Kingbird	Tyrannus tyrannus	5	S	0	0	S4B	2023-05-31
Eastern Meadowlark	Sturnella magna	4	A	THR	THR	S4B	2023-05-31
Eastern Meadowlark	Sturnella magna	5	A	THR	THR	S4B	2023-05-31
Eastern Towhee	Pipilo erythrophthalmus	1	S	0	0	S4B	2023-05-31

Appendix E - Avifauna Observations

Common name	Scientific name	Station	Breeding Code	COSEWIC	SARO	S-Rank	Date
Eastern Towhee	Pipilo erythrophthalmus	2	S	0	0	S4B	2023-05-31
European Starling	Sturnus vulgaris	5	S	0	0	SNA	2023-05-31
Field Sparrow	Spizella pusilla	1	S	0	0	S4B	2023-05-31
Field Sparrow	Spizella pusilla	2	S	0	0	S4B	2023-05-31
Field Sparrow	Spizella pusilla	4	S	0	0	S4B	2023-05-31
Field Sparrow	Spizella pusilla	5	S	0	0	S4B	2023-05-31
Gray Catbird	Dumetella carolinensis	5	A	0	0	S4B	2023-05-31
Great Crested Flycatcher	Myiarchus crinitus	2	S	0	0	S4B	2023-05-31
Magnolia Warbler	Setophaga magnolia	3	S	0	0	S5B	2023-05-31
Magnolia Warbler	Setophaga magnolia	4	S	0	0	S5B	2023-05-31
Red-eyed Vireo	Vireo olivaceus	3	S	0	0	S5B	2023-05-31
Red-eyed Vireo	Vireo olivaceus	4	S	0	0	S5B	2023-05-31
Red-winged Blackbird	Agelaius phoeniceus	4	S	0	0	S4	2023-05-31
Red-winged Blackbird	Agelaius phoeniceus	5	S	0	0	S4	2023-05-31
Ring-billed Gull	Larus delawarensis	5	X	0	0	S5B,S4N	2023-05-31
Rose-breasted Grosbeak	Pheucticus ludovicianus	1	S	0	0	S4B	2023-05-31
Savannah Sparrow	Passerculus sandwichensis	4	S	0	0	S4B	2023-05-31
Song Sparrow	Melospiza melodia	2	S	0	0	S5B	2023-05-31
Song Sparrow	Melospiza melodia	3	S	0	0	S5B	2023-05-31
Song Sparrow	Melospiza melodia	4	S	0	0	S5B	2023-05-31
Song Sparrow	Melospiza melodia	5	S	0	0	S5B	2023-05-31
Warbling Vireo	Vireo gilvus	5	S	0	0	S5B	2023-05-31
Yellow Warbler	Setophaga petechia	4	S	0	0	S5B	2023-05-31
Yellow Warbler	Setophaga petechia	5	S	0	0	S5B	2023-05-31

Appendix E - Avifauna Observations							
Common name	**Scientific name**	**Station**	**Breeding Code**	**COSEWIC**	**SARO**	**S-Rank**	**Date**
American Crow	Corvus brachyrhynchos	3	X	0	0	S5B	2023-06-15
American Crow	Corvus brachyrhynchos	4	T	0	0	S5B	2023-06-15
American Goldfinch	Spinus tristis	2	T	0	0	S5B	2023-06-15
American Goldfinch	Spinus tristis	3	T	0	0	S5B	2023-06-15
American Goldfinch	Spinus tristis	5	T	0	0	S5B	2023-06-15
Black-capped Chickadee	Poecile atricapillus	3	S	0	0	S5	2023-06-15
Blue Jay	Cyanocitta cristata	3	T	0	0	S5	2023-06-15
Cedar Waxwing	Bombycilla cedrorum	2	T	0	0	S5B	2023-06-15
Cedar Waxwing	Bombycilla cedrorum	4	T	0	0	S5B	2023-06-15
Chipping Sparrow	Spizella passerina	1	S	0	0	S5B	2023-06-15
Common Grackle	Quiscalus quiscula	4	H	0	0	S5B	2023-06-15
Common Yellowthroat	Geothlypis trichas	3	S	0	0	S5B	2023-06-15
Common Yellowthroat	Geothlypis trichas	4	S	0	0	S5B	2023-06-15
Common Yellowthroat	Geothlypis trichas	5	T	0	0	S5B	2023-06-15
Downy Woodpecker	Picoides pubescens	2	H	0	0	S5	2023-06-15
Eastern Meadowlark	Sturnella magna	3	S	THR	THR	S4B	2023-06-15
Eastern Meadowlark	Sturnella magna	4	T	THR	THR	S4B	2023-06-15
Eastern Meadowlark	Sturnella magna	5	A	THR	THR	S4B	2023-06-15
Eastern Towhee	Pipilo erythrophthalmus	1	T	0	0	S4B	2023-06-15
Eastern Towhee	Pipilo erythrophthalmus	2	T	0	0	S4B	2023-06-15
Field Sparrow	Spizella pusilla	2	T	0	0	S4B	2023-06-15
Field Sparrow	Spizella pusilla	3	S	0	0	S4B	2023-06-15
Field Sparrow	Spizella pusilla	4	T	0	0	S4B	2023-06-15
Great Crested Flycatcher	Myiarchus crinitus	1	S	0	0	S4B	2023-06-15
Great Crested Flycatcher	Myiarchus crinitus	2	T	0	0	S4B	2023-06-15
Magnolia Warbler	Setophaga magnolia	1	S	0	0	S5B	2023-06-15
Mourning Dove	Zenaida macroura	1	S	0	0	S5	2023-06-15

Appendix E - Avifauna Observations							
Common name	**Scientific name**	**Station**	**Breeding Code**	**COSEWIC**	**SARO**	**S-Rank**	**Date**
Red-eyed Vireo	Vireo olivaceus	5	S	0	0	S5B	2023-06-15
Red-winged Blackbird	Agelaius phoeniceus	4	T	0	0	S4	2023-06-15
Red-winged Blackbird	Agelaius phoeniceus	5	T	0	0	S4	2023-06-15
Savannah Sparrow	Passerculus sandwichensis	4	T	0	0	S4B	2023-06-15
Song Sparrow	Melospiza melodia	1	S	0	0	S5B	2023-06-15
Song Sparrow	Melospiza melodia	2	T	0	0	S5B	2023-06-15
Song Sparrow	Melospiza melodia	3	T	0	0	S5B	2023-06-15
Song Sparrow	Melospiza melodia	4	T	0	0	S5B	2023-06-15
Song Sparrow	Melospiza melodia	5	T	0	0	S5B	2023-06-15
Swamp Sparrow	Melospiza georgiana	3	S	0	0	S5B	2023-06-15
Yellow Warbler	Setophaga petechia	4	T	0	0	S5B	2023-06-15
Yellow Warbler	Setophaga petechia	5	T	0	0	S5B	2023-06-15

Code	Description
X	Species observed during its breeding season, but NOT in suitable nesting habitat (no breeding evidence found). Note that this code is rarely used as birds tend to occupy nesting habitat during the breeding season. Do not use for species known to be migrants.
H	Species observed in suitable nesting Habitat during its breeding season.
S	Singing male or adult producing other sounds associated with breeding (e.g., calls or drumming) in suitable nesting habitat during the species' breeding season.
M	Multiple singing/calling/drumming individuals (7 or more) heard during one visit to a single square and in suitable nesting habitat during the species' breeding season. Use with caution to avoid counting migrants.
P	Pair observed in suitable nesting habitat during the species' breeding season.
T	Presumed Territory based on the presence of an adult bird (usually singing, but not necessarily so), in the same suitable nesting habitat patch on at least two visits, one week or more apart, during the species' breeding season. Use discretion when using this code. "T" is not to be used for colonial birds, or species that might forage or loaf a long distance from their nesting site (e.g. Turkey Vulture, and male waterfowl).
D	Courtship or Displays involving a male and female (e.g., courtship feeding, copulation) or antagonistic behavior between two or more individuals (e.g., territorial disputes or chases), in suitable nesting habitat during the species' breeding season.
V	Bird Visiting a probable nest site in suitable nesting habitat during the species' breeding season.
A	Agitated behavior or alarm calls of an adult in suitable nesting habitat during the species' breeding season.
B	Brood patch or cloacal protuberance on an adult in suitable nesting habitat during the species' breeding season.
N	Nest-building by wrens or nest hole excavation by woodpeckers (both may build dummy or roosting nests so nest-building alone is not enough to confirm breeding).
NB	Nest building, including the carrying of nesting material, by all species except wrens and woodpeckers.
DD	Distraction Display, injury-feigning, or other displays attempting to draw attention away from a nest or young.
NU	Empty Nest Used or identifiable eggshells from earlier in the same nesting season.
FY	Recently Fledged Young (nidicolous species – whose young are raised in a nest) or downy young (nidifugous species – whose young leave the nest soon after hatching) incapable of sustained flight.
AE	Adult Entering, occupying, or leaving a nest site (visible or not) or whose behavior suggests the presence of an occupied nest.
FS	Adult carrying a Faecal Sac.
CF	Adult Carrying Food for young.
NE	Nest containing eggs
NY	Nest with Young (seen or heard)

Notes:

COSEWIC - Committee on the Status of Endangered Wildlife in Canada

SARO - Species at Risk in Ontario

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

SC - Special Concern

THR - Threatened

END - Endangered

NAR - Not at risk

S1 - Extremely rare in Ontario

S2 - Very rare in Ontario

S3 - Rare to uncommon in Ontario

S4 - Considered to be common in Ontario

S5 - Species is widespread in Ontario

SNA - Not Applicable (typically introduced species)

SU - Status is uncertain due to insufficient information

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

Appendix F

Significant Wildlife Habitat Screening

Significant Wildlife Screening - Ecozone 6E
Cambium Reference: 17986-001

Project No.: **Date:** **Sheet No.:**

Observer(s): **Weather:**

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes
Seasonal Concentration Areas of Animals					
Waterfowl Stopover and Staging Areas (Terrestrial)	Ducks	Cultural Ecosites: CUM1, CUT1	Fields that flood during spring (mid-March to May).	N	Field were not flooded in the spring.
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	While wetlands exist they do not contain large quanties of open water
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	None on Site
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	Communities are not large enoughs on Site and none observed during Site visits.
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	None on Site.
Bat Maternity Colonies	Big Brown Bat, Silver-haired Bat	Deciduous or mixed forests and swamps: FOD, FOM, SWD, SWM	Mature deciduous and mixed forest stands with >10/ha; large trees >25 cm DBH with cavities.	N	No communities with > 10 snags / ha
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.	Y	One pond on Site (Pond 5), contained enough water for turtles to overwinter
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	Some rock piles observed on Site but above the frost line and not suitable for hibernaculum.
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** inlcude man-made structures (bridges or buildings), or recently (2 yrs) disturbed soil areas (berms, embankments, soil/aggregate stockpiles).	N	No exposed soils banks/berm.
Colonially-nesting Bird Breeding Habitat (Tree/Shrubs)	Great Blue Heron, Black-crowned NightHeron, 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	No dead standing trees in wetlands.
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	Habitat does not exits on Site.
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 10ha, located within 5 km of Lake Ontario. Combination of field and forest, undisturbed sites, with flowering species (preferred nectar plants).	N	Not within 5km of Lake Ontario
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	Not within 5km of Lake Ontario
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	None mapped on Site
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	None mapped on Site

Significant Wildlife Screening - Ecozone 6E
Cambium Reference: 17986-001

Project No.: **Date:** **Sheet No.:**

Observer(s): **Weather:**

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (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	None on Site
Sand Barren		SBO1, SBS1, SBT1	Sand Barrens >0.5 ha. Vegetation can vary from patchy and barren to continuous meadow, thicket--like, or tree covered (less than 60%). Less than 50% vegetation cover are exotic species.	N	None on Site
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	N	None on Site
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	None on Site
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	None on Site
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	None on Site
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	None on Site
Specialized Habitat for Wildlife					
Waterfowl Nesting Area	Ducks	Upland habitats adjacent to: MAS1 to MAS3, SAS1, SAM1, SAF1, MAM1 to MAM6, SWT1, SWT2, SWD1 to SWD4	Extends 120 m from a wetland or wetland complex. Upland areas should be at least 120 m wide. Wood Ducks and Hooded Mergansers use cavity trees (>40cm dbh) in woodlands.	N	No enough indicator species observed.
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	No Large waterbodies on Site.
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	Naturlal or conifer plantation woodland/forest stands >30 ha with > 10 ha interior habitat. Stick nests.	N	Forested areas not large enough. No nests observed
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	None on Site.
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	None on Site.
Amphibian Breeding Habitat (Woodland)	Woodland Frogs and Salamanders	FOC, FOM, FOD, SWC, SWM, SWD	Wetland, pond or woodland pool of >500 m^2 within or adjacent (within 120m) to wooded areas (no min. size). Woodlands with permanent ponds or those containing water until mid-July are preferred.	N	None on Site
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	Associated with Wetland 1 and central hydrological corridor
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.	N	Forest are not >60 years and interorior forest habitat <200m2
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	Wetlands exits but mostly dry by July.

Significant Wildlife Screening - Ecozone 6E
Cambium Reference: 17986-001

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SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes
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	CUM fields not >30ha
Shrub/Early Successional Bird Breeding Habitat	Brown Thrasher, Clay-coloured Sparrow, Field Sparrow, Black-billed Cuckoo, Eastern Towhee, Willow Flycatcher, Yellow-breasted Chat, Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2	Large field areas succeeding to shrub and thicket habitats > 10 ha. Areas not actively used for farming in the last 5 years.	N	No Indicator species present.
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	No species present
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).	Y	See section 4.10.2