

Environmental Impact Study – 1273 Dignan Road, Dysart et al., Haliburton County, Ontario



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1.0 Introduction

Cambium Inc. (Cambium) was retained by Brian Brum to conduct an Environmental Impact Study at 1273 Dignan Road, in the Municipality of Dysart et al., Haliburton County, Ontario (Figure 1). The subject property is currently developed with a single dwelling, located near the southern extent. The proposed development includes the severance of three new residential lots on the northern portion of the property by way of Consent Application and Zoning By-law Amendment. Based on the proposed development, the northern 40 ha of the property (where the new residential lots and building envelopes are proposed) will be considered the Site for this report.

An Environmental Impact Study (EIS; the Study) is required 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 hydrologic features: Haliburton Lake, unnamed watercourses (tributaries to Haliburton Lake), unnamed waterbodies (ponds), unevaluated wetlands, woodlands, and Deer Wintering Area (Stratum II). The Site is within Ecoregion 5E of Ontario (Crins, Gray, Uhlig, & Wester, 2009). The Site is outside of any settlement area boundaries. The Site is located outside of any Conservation Authority jurisdiction.

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 to determine if the Site has suitable habitat for any endangered or threatened 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 at the Site. Information has been compiled to evaluate the existing natural heritage features on and adjacent to the Site, including an assessment of the



significance and sensitivity of these features. An assessment of the form and function of natural heritage features on and adjacent to the Site is provided, which includes an evaluation of the potential for impact to these features in relation to the proposed development. Data was interpreted in accordance with provincial and municipal policies and regulations to determine potential constraints to development, to guide the decision-making process and address approval authority requirements.

1.1 Terms of Reference

The Terms of Reference (TOR) were circulated to Kris Orsan, Manager of Planning, Dysart et al. and a response was received dated May 2, 2023. Relevant correspondence and documentation are included in Appendix A.

1.2 Summary of Proposed Development

The subject property is developed with a single residential dwelling near the southern boundary. The proposed development includes the severance of three new residential lots on the northern portion of the property by way of Consent Application and Zoning By-law Amendment. The northern portion of the Site (approximately 40 ha) are considered the Site for this Study. The Site is currently vacant and has frontage on Hodgson Road to the north and Dignan Road to the west. The Site and adjacent lands are primarily wooded, with residences concentrated along the shoreline of Haliburton Lake to the north, west, and south.

A Conceptual Site Plan is provided in Appendix B. This Site Plan is preliminary and was used for the purpose of scoping the Study. Note that future Site Plans submitted in support future permit applications should include the recommendations provided herein.



2.0 Natural Heritage Policy Context

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

- Provincial Policy Statement (PPS), 2020
- County of Haliburton Official Plan, 2017
- Municipality of Dysart et al. Official Plan, 2018
- Municipality of Dysart et al. Zoning By-law, 2022
- Provincial Endangered Species Act (ESA), 2007
- Federal Fisheries Act, 2019
- Federal Species at Risk Act (SARA), 2002
- Federal Migratory Birds Convention Act (MBCA), 1994

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

2.1 Provincial Policy Statement, 2020

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

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



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

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 Official Plan and Zoning By-Law

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

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

Source	Designation / Zoning
Official Plan – County of Haliburton	Rural Land
Official Plan – Municipality of Dysart et al.	Rural Area
Zoning By-law – Municipality of Dysart et al.	Rural 1

2.3 Provincial Endangered Species Act, 2007

Species listed as endangered or threatened on the Species at Risk in Ontario (SARO) list, and their habitats, are protected under the provincial Endangered Species Act, 2007 (ESA) (Government of Ontario, 2007). Section 9(1) of the ESA prohibits a person from killing,

harming, harassing, capturing, or taking a member of a species listed as endangered, threatened, or extirpated. Section 10(1) of the ESA prohibits the damage or destruction of habitat of species listed as endangered or threatened. Protection of special concern species is provided through designation of their habitat as significant wildlife habitat (SWH), a provincially protected natural heritage feature. Species at risk (SAR) are discussed throughout this report, as applicable.

2.4 Fisheries Act, 1985

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).

2.5 Species at Risk Act, 2002

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.



2.6 Migratory Birds Convention Act, 1994

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



3.0 Technical Approach and Data Collection Methods

3.1 Background Information Review

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

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

- Land Information Ontario (LIO) database via the online Natural Heritage Areas: Make-a-Map tool (Ministry of Natural Resources and Forestry, 2022)
- Natural Heritage Information Center (NHIC) database: species at risk (SAR) occurrence records
- Online Atlas Data:
 - Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature, 2018)
 - Ontario Breeding Birds Atlas (OBBA) (2001-2005) (Bird Studies Canada, 2005)
- Aquatic Species at Risk distribution maps (Fisheries and Oceans Canada, 2022)
- 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	Haliburton Lake Unnamed watercourses (tributaries to Haliburton Lake) Unnamed waterbodies (ponds) Unevaluated wetlands Woodlands
NHIC Database	17QL0403 17QL0404 17QL0405 17QL0503 17QL0504 17QL0505	None
Ontario Breeding Bird Atlas (OBBA)	17TQL00	See list of species in Appendix C
Ontario Reptile and Amphibian Atlas (ORAA)	17QL00	See list of species in Appendix C
Aquatic SAR distribution maps	Site and 120 m adjacent lands	None

Note: The habitat-based screening for endangered and threatened species provided in Appendix C includes a list of all species within the overlapping OBBA and ORAA squares with potential policy implications.

3.2 Consultation and Agency Correspondence

Regulatory agency consultation may include Fisheries and Oceans Canada (DFO), the Ministry of Natural Resources and Forestry (MNR), and the Ministry of Environment, Conservation, and Parks (MECP), as applicable. The MECP is responsible for administering the ESA and providing direction on potential compliance issues. MECP has prepared a guidance document titled *Client's Guide to Preliminary Screening for Species at Risk* (Ministry of the Environment, Conservation and Parks, 2019). This document aims to “help clients better understand their obligation to gather information and complete a preliminary screening for SAR before contacting the Ministry”. This document was used to guide the SAR habitat-based screening for the Study.



No direct consultation with regulatory authorities was undertaken for this project due to sufficient availability of Site-specific data through publicly accessible resources.

3.3 Field Investigations

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

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

3.3.1 Ecological Land Classification and Vegetation Inventory

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

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

quality, degree of disturbance, presence of non-native/invasive species, and presence of sensitive plant species (plants with CC of > 9). A description of CC values is provided in Table 3.

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

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

3.3.2 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, 2014). Evaluated wetlands that score high enough are deemed Provincially Significant Wetlands (PSW). Evaluated wetlands that do not score high enough to be a PSW are classified as Locally Significant Wetlands (LSW) or non-significant. 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.

Wetlands on the Site were delineated following provincially approved methods outlined in the Ontario Wetland Evaluation System: Southern Manual, 3rd Ed. (Ministry of Natural Resources, 2014). 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 and staked/flagged in the field. Where wetland communities extend off the Site, classification was done through observation from property boundaries and publicly accessible lands.

3.3.3 Aquatic Habitat Assessment

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

3.3.4 Eastern Whip-poor-will Surveys

The Eastern Whip-poor-will (*Caprimulgus vociferus*) is 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) and supplemented with timing recommendations provided in the Canadian Nightjar Survey Protocol (Birds Canada and Environment and Climate Change Canada, 2023). 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 are to be 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; full moon dates vary from year to year). 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 300 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. The direction and approximate distance from the survey station are also noted.

3.3.5 Deer Wintering Habitat Survey

The MNRF is responsible for identifying deer wintering areas. Stratum I locations are the core forested wintering areas. Stratum II areas are comprised primarily of mixed and deciduous forests that offer plenty of browse; agricultural lands may also be included. Deer typically congregate in Stratum II areas when snow cover is up to 20 cm deep, before moving into the core area (Stratum I) when winter conditions are more severe. Stratum I habitat is typically comprised of coniferous trees (pine, hemlock, cedar, spruce) with >60% canopy cover. Congregation areas are typically woodlands greater than 100 ha, though woodlands less than 100 ha may also be considered significant based on the MNRF assessment. A travel corridor to the yard from the congregation area is required. To determine the significance of a congregation area, the MNRF conducts an assessment, typically during January or February when the snow depth is greater than 20 centimeters (cm), using techniques such as aerial, ground, or road surveys or a pellet count deer density survey. Since deer tend to re-use the same congregation areas year after year, local hunters, conservation officers, and foresters may also know if a specific location is used as a wintering area.

Deer wintering areas are identified and mapped as significant wildlife habitat (SWH) by the MNRF, and this mapping is typically not altered by independent site-level Study (Ministry of



Natural Resources and Forestry, 2015). However, within the area mapped as Stratum I or Stratum II by the MNRF, Site-specific information was gathered through this Study to provide an assessment of the wintering area quality, such as the extent and quality of conifer cover and estimated quantity of food available.

3.3.6 Habitat-Based Wildlife Surveys

Given the scale of the proposed development, a habitat-based approach was used to assess potential impacts to wildlife, consistent with standard practice. General habitat information gathered through the field investigations was used to assess the connectivity of the Site with the surrounding landscape and evaluate the ecological significance of the local area. Cambium staff actively searched for features that may provide specialized habitat for wildlife. These searches included inspecting tree cavities, overturning logs, rocks, and debris, and scanning for scat, browse, sheds, fur, etc. Any evidence of breeding, forage, shelter, or nesting was noted. Species and habitat observations were documented and photographed.



4.0 Characterization of Natural Features and Functions

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

A summary of the field investigations completed on the Site is presented in Table 4. Representative Site photos are included within the Photo Log in Appendix D. Survey stations/areas are shown on Figure 2.

Table 4 Summary of Field Investigations

Date	Time On Site	Weather	Observer	Activities
2023-02-17	0800-13:30	Temp:-5 °C Partly Cloudy Wind Code: 0 Noise Code: 0	C. Johnson	Deer Wintering Survey Wildlife Tree Survey Habitat-based Wildlife Survey
2023-05-31	0944-1005	Temp:21 °C Sunny Wind Code: 0 Noise Code: 3	C. Johnson	Eastern Whip-poor-will Surveys
2023-07-04	1030-1110	Temp:23 °C Sunny Wind Code: 0 Noise Code: 1	C. Johnson	Eastern Whip-poor-will Surveys
2023-07-07	0900-1500	Temp:26 °C Partly Cloudy Wind Code: 0 Noise Code: 0	K. McKitterick	Ecological Land Classification and Vegetation Inventory Wetland Delineation Aquatic Habitat Survey Habitat-based Wildlife Survey
2023-07-10	1050-1135	Temp:21 °C Partly Cloudy Wind Code: 0 Noise Code: 0	C. Johnson	Eastern Whip-poor-will Surveys

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



4.1 Landscape Position and Topography

The Site is located within the Ontario Shield Ecozone: Georgian Bay Ecozone 5E, which is located in south-central Ontario, extending southeast from Lake Superior to the central portion of the Ottawa River valley in the east, including Parry Sound, Perth, North Bay, Sudbury, and Sault Ste. Marie. This Ecozone is characterized by frequently exposed bedrock, shallow soils, and mixed forests representative of the Great Lakes – St. Lawrence Forest Region (Lee, et al., 1998).

Elevation on the Site ranges from 380 m above sea level (ASL) to 435 m ASL. The lowest point on the Site is associated with the provincially mapped wetland / waterbody located along the western Site boundary, adjacent to Dignan Road. The highest topography on the Site is along the eastern Site boundary. Several unmapped wetlands and seasonal drainage features were identified on the Site through this Study in association with the bases of steep slopes and plateaus. Overall, the local landscape slopes down to the west and north toward Haliburton Lake, and south toward an unnamed watercourse on adjacent lands (see Figure 1).

4.1.1 Historical Land Use

A review of historical aerial imagery for the Site area indicates that the Site has remained similarly forested since at least 1951 (Trent University Library & Archives, 1951). Adjacent lands were also historically largely forested. Since 1951, Dignan Road and several residences along the shoreline of Haliburton Lake have been constructed.

4.2 Surface Water and Drainage Features

A review of publicly available imagery revealed the presence of two unnamed, mapped watercourses on Site that are tributaries to Haliburton Lake (Figure 1). These watercourses are depicted as connecting areas of mapped unevaluated wetland on the Site to Haliburton Lake to the west. Both features were determined to be absent during the field investigations; no signs of flow path or culverts under Dignan Road were observed. It is possible that these features were present historically; the northern feature flow path may have been altered to align with DF6 (detailed below) due to construction of a Beaver Dam at the north end of the mapped wetland / waterbody on the Site, while the southern feature flow path may have been



altered by construction of residences along the Haliburton Lake shoreline. Any historical culverts under Dignan Road may be buried by debris and difficult to locate.

An additional permanent watercourse is mapped on adjacent lands southeast of the Site (Figure 1). This feature originates from the east and is connected to additional mapped unevaluated wetlands, water bodies and watercourses. This feature also flows to the west, towards Haliburton Lake. Given its location off Site and distance from the proposed building envelopes, this feature was not surveyed during field investigations and is presumed to be present as mapped and is considered herein as fish habitat (Figure 2).

Field investigations revealed the presence of eight additional drainage features on the Site:

- Two drainage features (DF1, DF2) were identified near the southern Site boundary (Figure 2). Based on an examination of publicly available imagery, these features drain into wetland features to the south, which eventually drain into Haliburton Lake. Both of these were delineated based on low-lying topography. No defined channel / banks, surface water / flow, substrate sorting, or wetland vegetation was observed; as such, DF1 and DF2 are considered to be ephemeral (i.e., conveying snowmelt and occasional storm flows), and do not provide fish habitat.
- A third drainage feature (DF3) was identified near the eastern property boundary (Figure 2). This feature flows north to a small wetland that was identified through field investigations as overlapping the eastern Site boundary (wetlands are discussed further in Section 4.3). Substrates were generally poorly sorted in this feature, though some washed cobble was observed (likely in association with occasional heavy storm flows), with deposits of organic matter noted throughout. No flow was observed in this feature during field investigations. It is assumed that flow within this feature is ephemeral (i.e., associated with snow melt and occasional storm flows). No fish habitat is present in DF3.
- Two short drainage features (DF4 and DF5) were identified east of the mapped unevaluated wetland / waterbody along the western Site boundary (Figure 2). Some flow was observed in DF4 during field investigations; no flow was observed in DF5. DF4 consisted of a defined channel, with washed cobble substrates and deposits of organic matter; given the flow observed in this feature and greater substrate sorting observed, DF4



may be conveying shallow groundwater inputs that provide a permanent flow regime.

Substrates in DF5 were poorly sorted, with deposits of organic matter; DF5 is assumed to be ephemeral in nature (i.e., conveying snow melt and occasional storm flows). Both DF4 and DG5 exhibited steep gradients that would impede the movement of fish.

- Four drainage features (DF6, DF7, DF8, and DF9) were identified in the northern portion of the Site (Figure 2). DF6, DF7, and DF8 all flow into a small wetland (detailed in Section 4.3) at the northeast corner of the Site; DF9 conveys flows north from the wetland into Haliburton Lake by way of a culvert under Hodgson Road.
 - DF6 flows northeast from the north end of the mapped unevaluated wetland / waterbody along the western Site boundary. A beaver dam was observed at the upstream end of DF6 / outlet from the mapped wetland / waterbody. DF6 exhibited a well-defined natural channel with well sorted substrates and signs of erosion and sedimentation, which may have been associated with historical failure of the upstream beaver dam; the dam showed signs of recent repairs (likely within the last year). No surface water / flow was observed in DF6, and an intermittent (beaver controlled) flow regime is assumed. This feature provides potential fish habitat.
 - DF7 is a constructed roadside drainage ditch located along the northern Site boundary / south side of Hodgson Road. It conveys flows east along Hodgson Road. No flow or signs of flow (substrate sorting, erosion, and sedimentation) were observed in this feature during field investigations, and it is assumed to be ephemeral in nature (i.e., conveying snowmelt and occasional storm flows), and does not provide fish habitat.
 - DF8 is an undefined channel consisting of areas that convey surface / sheet flows north along low topography in the northeast corner of the Site. Thick organic matter deposits were observed along the flow path. No surface water / flow or substrate sorting was observed. As such, this feature is assumed to be ephemeral in nature (i.e., conveying snowmelt and occasional storm flows), and does not provide fish habitat.
 - DF9 conveys flows from the wetland that was identified at the northeast corner of the Site north under Hodgson Road and into Haliburton Lake. This feature was not easily observed from the roadside due to topography and dense vegetation; however, based



on interpretation of orthoimagery, a connection is present. As such, this feature is assumed to provide intermittent flow and fish habitat.

4.3 Wetland Delineation

Provincial mapping shows two unevaluated wetland features on/overlapping the Site and two on adjacent lands to the south, associated with the watercourse mapped southeast of the Site (discussed in Section 4.2). The more northern wetland mapped on the Site has an associated centrally mapped waterbody. All provincially mapped wetlands and waterbodies are shown on Figure 1. Field investigations confirmed that the boundaries of the wetlands mapped on the Site were generally consistent with provincial mapping, with minor refinements as shown on Figure 2. Given their location on adjacent lands and distance from the proposed building envelopes, the mapped wetlands on adjacent lands to the south were not surveyed during the field investigations but are assumed to be present as mapped.

Five additional wetlands (mainly treed swamp, and two small marshes in the northern portion of the Site) were identified during field investigations. These wetlands, and their associated drainage features (Section 4.2), generally follow the points of lowest elevation at the bottom of the steep slopes and plateaus on the Site.

The wetland boundaries on the Site were GPS mapped in the field, and determined by the 50% wetland vegetation rule (i.e., >50% relative cover by wetland vegetation species), according to the OWES Northern Manual (Ministry of Natural Resources and Forestry, 2022)

4.4 Vegetation Communities and Inventory

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

Table 5 Vegetation Communities

No.	ELC Code	Community Description	Community Type	S - Rank
1	FOD5-4	Dry – Fresh Sugar Maple – Ironwood Deciduous Forest	Terrestrial	S5



No.	ELC Code	Community Description	Community Type	S - Rank
2	FOM3-2	Moist – Fresh Hemlock – Sugar Maple Mixed Forest	Terrestrial	S4S5
3	MAS2	Mineral Shallow Marsh	Wetland	SNA
4	SAF1-1	Water Lily- Bullhead Lily Floating Leaved Shallow Aquatic	Aquatic	S5
5	SWMM4-2	Black Ash – Conifer Mineral Mixed Swamp	Wetland	S5
6	MAS2-9	Forb Mineral Shallow Marsh	Wetland	S4
7	SWC1-2	White Cedar – Conifer Mixed Coniferous Swamp	Wetland	S5
8	MAM	Meadow Marsh	Wetland	SNA

The Site is primarily forested (Communities 1 and 2), with treed swamps (Community 5) and two small marshes (Communities 6 and 8) associated with low points of topography. A larger provincially mapped wetland and waterbody (Communities 3, 4, and 7) is located along the western Site boundary. No provincially rare vegetation communities were observed on-site or adjacent lands.

Overall, vegetation species ranged in CC values from 0-6, with only 2 species having CC values higher than 6: Striped Maple (*Acer pensylvanicum*) and Hobblebush (*Viburnum lantanoides*). These species had CC values of 7 and 8, respectively. These species are well-represented on the local landscape in proximity to the Site. One provincial SAR, Black Ash (*Fraxinus nigra*) was identified on the Site in the Black Ash – Conifer swamp (Community 5); this species is discussed further in Section 4.9.

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 broader landscape within Ecoregion 5E. As such, the Natural Heritage Reference Manual and the PPS do not protect or designate significant woodlands within Ecoregion 5E. Significant woodlands have not been identified on or adjacent to the Site by the upper tier or lower tier municipality. Significant woodlands are not present on the Site.

4.6 Wildlife Survey Results

Incidental wildlife observations were recorded during field investigations. These included Downy Woodpecker (*Dryobates pubescens*), Pine Grosbeak (*Pinicola enucleator*), and Red Squirrel (*Sciurus vulgaris*). Recent American Beaver (*Castor canadensis*) activity was recorded on Site, in association with a beaver dam observed at the northern edge of provincially mapped wetland/waterbody (Communities 3, 4, and 7). Wild Turkey (*Meleagris gallopavo*) tracks were also observed. No raptors or stick nests were observed on the Site during field investigations. During the winter field visit, cavity trees were found to be confined to treed swamp habitats (i.e., where no development is proposed); given the low number of cavity trees present in terrestrial habitats on the Site, detailed bat maternity roost surveys were not conducted (also detailed in Appendix A).

4.6.1 Eastern Whip-poor-will Surveys

Eastern Whip-poor-will breeding bird surveys were completed at two survey stations on the Site, as shown on Figure 2. No Eastern Whip-poor Wills were heard calling on the Site during any of the surveys. As such, this species is understood to be absent from the Site and is not discussed further herein.

4.7 Significant Wildlife Habitat

The Natural Heritage Reference Manual (NHRM) states the assessment requirements for Significant Wildlife Habitat (SWH) in relation to various scales of development. The Province recommends that the evaluation of SWH be investigated, on lands beyond the boundary of a settlement area, when the creation of *more than* three lots through either consent or plan of subdivision (Ministry of Natural Resources, 2010). As such, a fulsome assessment is not required in relation to the proposed development. Deer Wintering Habitat SWH is provincially



mapped on the Site; as such, this type of SWH is understood to be present, and is discussed further below.

4.7.1 Deer Wintering Habitat (Stratum I and II)

Publicly available provincial mapping indicates the entire Site and adjacent lands to the north, east, south, and west provide Deer Wintering Habitat (Stratum II) SWH. Schedule K (Animal Natural Heritage) of the County of Haliburton Official Plan (County of Haliburton, 2017) indicates the presence of Stratum I Deer Wintering Area also located on adjacent lands to the southeast. Digital mapping from the County Official Plan is not included on the Figures included within this report; provincially mapped Deer Wintering Habitat areas are shown on Figure 1.

Treed portions of the Site (Communities 1, 2, 5, and 7) provide suitable Stratum II Deer Wintering Habitat. This SWH type is mapped by the MNRF, and the boundaries are not typically adjusted based on Site-scale investigations. However, a targeted survey was undertaken as part of this Study to better understand high-use areas on the Site. Given the scale of the Site and proposed developments, survey transects were concentrated in near-road areas, as detailed on Figure 2. No signs of deer activity were observed. The Client has also communicated that deer presence in the area is generally declining (as observed through standard hunting practices), and they are unaware of any deer wintering activities or seasonal congregation on the Site.

4.8 Fish and Fish Habitat

Haliburton Lake to the north and west of the Site, supports a diverse fish community and provides thermal habitat conditions varying from warmwater to coldwater (in deep water areas). Based on the background information review, fish species known to occur in Haliburton Lake include: Brown Bullhead (*Ameiurus nebulosus*), Burbot (*Lota lota*), Cisco (*Coregonus artedi*), Lake Trout (*Salvelinus namaycush*), Lake Whitefish (*Coregonus clupeaformis*), Largemouth Bass (*Micropterus salmoides*), Pumpkinseed (*Lepomis gibbosus*), Rock Bass (*Ambloplites rupestris*), Smallmouth Bass (*Micropterus dolomieu*), White Sucker (*Catostomus commersoni*), and Yellow Perch (*Perca flavescens*).



As detailed in Section 4.4, the provincially mapped wetland / waterbody (Communities 3, 4; and 7), and hydrologically connected drainage features (DF6, DF9) and wetlands (Community 6) provide potential / seasonal fish habitat on the Site. The provincially mapped permanent watercourse on adjacent lands south of the Site is also assumed to provide fish habitat. These features are connected to Haliburton Lake and have potential to support some of the same fish species; however, no fish were observed in any of these features during the field investigations. No other fish habitat was identified on the Site through this Study.

No critical habitat for species at risk was found on federal mapping during the background information review.

4.9 Endangered and Threatened Species

The habitat of endangered and threatened species is protected under the ESA, 2007, and associated regulations. A list of endangered and threatened species with potential to occur in the general vicinity of the Site has been compiled based on known species' ranges, habitat requirements, and review of background information sources (as listed in Section 3.1). In addition, the list has been augmented with direct field observations from the Study, as detailed in the previous sections. Cambium has employed a habitat-based screening, supplemented with targeted field surveys, when necessary, in order to identify suitable habitat for species located on or adjacent to the Site. A detailed habitat suitability analysis is provided in Appendix C and a discussion of the results is provided below.

Bank Swallow (*Riparia riparia*) nests in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. They often use large wetlands as communal nocturnal roosts post-breeding or during wintering periods. Suitable roosts are present in and around the provincially mapped wetland / waterbody on the Site (Communities 3, 4, and 8). No Bank Swallows were observed during field investigations.

Blanding's Turtle (*Emydoidea blandingii*) is listed as threatened both federally and provincially. They spend most of their life cycle in large wetlands or shallow lakes with high densities of water plants, nutrient rich water, and organic sediment. Suitable habitat is present in Communities 3 and 4 on the Site, and in Haliburton Lake to the north and west. Blanding's Turtle also uses fields and canopy openings in dry coniferous and mixed forest habitats for



nesting. Due to dense canopy cover, nesting habitat on the Site is limited to roadsides and wetland edges. No Blanding's Turtles were observed during field visits.

Spotted Turtle (*Clemmys guttata*) is listed as endangered federally and provincially. This 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. Hibernation and mating habitat is present in Communities 3 and 4 on the Site, and in Haliburton Lake to the north and west. In addition, this species could move through terrestrial areas including Communities 1-5 and during its active season. No Spotted Turtles were observed during field visits.

Wood Turtle (*Glyptemys insculpta*) is listed as threatened federally and endangered provincially. Wood Turtle uses aquatic habitats for hibernation and mating activities. However, this species also spends more time on land than other turtle species; wooded areas are an essential habitat component. Hibernation and mating habitat is present in Communities 3 and 4 on the Site, and in Haliburton Lake to the north and west. Communities 1-5 and 7 provide potential active season habitat. No Wood Turtles were observed during field visits.

Eastern Hog-nosed Snake (*Heterodon platirhinos*) is listed as threatened federally and provincially. 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. Communities 3-8 provide suitable foraging habitat (foraging habitat is not protected under the ESA). Rock formations observed on high topography throughout the Site have potential to provide hibernation habitat for snakes. No Eastern Hog-nosed Snakes were observed during field investigations.

The Site may provide habitat for the following bat species: Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*M. lucifugus*), Northern Myotis (*M. septentrionalis*), and Tri-coloured Bat (*Perimyotis subflavus*). No caves or known hibernacula are present on the Site. Bat Maternity Roost surveys determined that while there are suitable cavity trees for bats to roost, these trees are primarily located in wetlands (i.e., where no development is proposed). Open areas of the Site (Communities 3 and 4) may be used as foraging habitat for these species;



however, foraging habitat is not protected under the ESA. No SAR bats or evidence of bats was observed on the Site.

The Algonquin Wolf (*Canis Lycaon*), formerly known as the Eastern Wolf, 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. Considering the mapped Deer Wintering Habitat overlapping the Site and the large, forested area on-Site and adjacent lands (Communities 1-2), the Algonquin Wolf has the potential to use the Site. However, Algonquin Wolves are wary of humans, and are not anticipated to be using the Site at the time of development. No Algonquin Wolves were observed during field visits.

Black Ash (*Fraxinus nigra*) was added to the Species at Risk in Ontario List (O. Reg. 230/08) as an Endangered species on January 26, 2022. This species was confirmed on Site in Community 5. A Minister's Order temporarily paused the protections (species and habitat) for Black Ash under the Endangered Species Act for a period of two years (i.e., until January 26, 2024).

Mitigation strategies and best management practices regarding impacts to endangered and threatened species are provided in Section 5.3.



5.0 Impact Assessment and Mitigation Measures

The proposed development includes the severance of three new residential lots by way of Consent Application and Zoning By-law Amendment. The proposed layout of lot lines and building envelopes is provided in Appendix B.

The following protected features were identified on and adjacent to the Site:

- Haliburton Lake
- Wetlands
- Waterbody
- Intermittent Watercourses
- Fish Habitat
- Deer Wintering Habitat (Stratum I and Stratum II) SWH
- Habitat for Endangered and Threatened Species

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

The placement of lot lines is administrative in nature; no impacts to natural heritage or hydrologic features are associated with the administrative creation of lots. The following sections address potential impacts to protected features that may result from the proposed Site alterations including construction of a residence and associated infrastructure (i.e., well, septic, laneway entrance) on each new lot. 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, Waterbodies, Intermittent Watercourses, and Fish Habitat

No future Site alteration is proposed within wetlands, waterbodies, intermittent watercourses, or their associated fish habitat. As such, no direct impacts to these features are anticipated in relation to the proposed development.

A 30 m development setback is recommended for all wetland features / waterbodies (Communities 3-8), and intermittent watercourses (DF3 and DF9), as shown on Figure 3. All fish habitat on the Site is contained within these features. The 30 m setback is considered sufficient to protect the existing form and function of these features provided that the setback area be maintained as a buffer (i.e., where no vegetation removals or grading is allowed).

Future construction should also avoid the ephemeral drainage features (DF1 to DF5, DF7 and DF8) on the Site, as they provide seasonal flow pathways for sediment to migrate into the wetlands, waterbodies, watercourses, and fish habitat discussed above. Impacts arising from increased potential for erosion and sedimentation should be sufficiently mitigated provided the best management practices provided in Section 5.4 are adhered to.

Provided the 30 m setbacks shown on Figure 3 and the recommendations discussed in Section 5.4 are implemented, no indirect impacts to the ecological or hydrologic functions of the wetlands, waterbodies, intermittent watercourses, and fish habitat on and adjacent to the Site are anticipated in relation to the proposed development.

5.2 Deer Wintering Habitat (Stratum I and Stratum II) SWH

As detailed in Section 4.7.1, the Site is designated as Stratum II deer wintering area (per provincial mapping, as shown on Figure 1), and an area of Stratum I habitat is located on adjacent lands to the east (per County Official Plan mapping). However, field investigations did not reveal the presence of deer activity on the Site in the appropriate winter season.

Deer can generally tolerate small-scale residential development, provided it does not impede movement between core wintering areas (Stratum I) and winter staging areas (Stratum II). However, tree removals should be limited to the proposed building envelope and tree cover should be retained to the maximum extent possible.



Provided the recommendations in Section 5.4 are adhered to, no impacts to the form and function of Deer Wintering SWH on and adjacent to the Site are anticipated in relation to the proposed development.

5.3 Habitat of Endangered and Threatened Species

The Site was screened for habitat of the following endangered / threatened species that may occur in the regional area of the Site: Bank Swallow, Blanding's Turtle, Spotted Turtle, Wood Turtle, Eastern Hog-nosed Snake, Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, Tri-coloured Bat, and Black Ash. Each of these species is addressed below.

Bank Swallow

The provincially mapped wetland / waterbody on the Site (Communities 3, 4, and 7) provide potential communal nocturnal roosting habitat for Bank Swallow. Provided the recommendations related to wetlands and waterbodies, detailed in Section 5.1 are adhered to, no impacts to this species or its habitat is anticipated in relation to the proposed development.

Turtles and Snakes

Turtles and snakes are particularly vulnerable to construction-related impacts on sites adjacent to wetlands, watercourses, and waterbodies. Protection of wetlands and waterbodies is detailed in Section 5.1. Additional recommendations relating to turtles and snakes (i.e., timing windows, exclusion measures) are detailed in Section 5.4. Provided these measures are implemented, no impacts to turtles or snakes are anticipated in relation to the proposed development.

Bats

Potential roost trees are primarily located within wetlands; protection of these features is detailed in Section 5.1. Additional recommendations related to bats (timing windows, limiting tree removals) are provided in Section 5.4. Provided these measures are implemented, no impacts to bats are anticipated in relation to the proposed development.



Black Ash

Black Ash was identified in the Black Ash – Conifer swamp (Community 5); protection of wetlands is detailed in Section 5.1. Provided these measures are implemented, no impacts to Black Ash are anticipated in relation to the proposed development.

5.4 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 6 be implemented at the Site.

Table 6 Mitigation Measures and Best Management Practice Recommendations

Potential Impact	Recommended Best Practice
Erosion and Sedimentation	<p>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, waterbodies, watercourses, and drainage features) 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.</p> <p>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.</p>
Wildlife: Birds (Disturbance and Harm)	<p>Nesting birds and their nests, eggs, and young are protected under the <i>Migratory Birds Convention Act, 1994</i>. Vegetation clearing on the Site should occur outside the breeding bird season, which extends from April 15 to August 15 in the local area (as per Environment and Climate Change Canada Guidelines).</p>
Wildlife: Bats (Disturbance and Harm)	<p>Tree removal should be limited to the building envelope to the extent possible. Small scale tree removal will not result in impairing or eliminating the function of habitat to support bat life processes provided the tree removal avoids the active bat season (April 1 – September 30).</p>
Wildlife: Reptiles (Disturbance and Harm)	<p>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</p>



Potential Impact	Recommended Best Practice
	<p>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.</p> <p>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.</p> <p>As the Site is located adjacent to potential habitat for turtles, workers should be aware of the nesting season for turtles, which extends from May 15 to August 15. All stockpiled materials should be kept inside the exclusion fencing area and ideally should be covered and well secured around the base, to prevent turtles from nesting in loose substrates. Should any nesting turtles be encountered, work should stop immediately, and the turtle should be left to finish nesting undisturbed. The turtle should be photographed, and the nest marked to ensure it is not disturbed during construction, or until eggs have hatched (late August – September). If a nest is laid in a stockpile or other area that requires disturbance, Cambium or MNR/MECP should be contacted to determine if the nest can be relocated.</p>
<p>Species at Risk (SAR; Threatened and Endangered)</p>	<p>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.</p>
<p>Spread of Invasive Species</p>	<p>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:</p> <ol style="list-style-type: none"> 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



Potential Impact	Recommended Best Practice
	<p>invasive species following the Clean Equipment Protocol for Industry: Inspecting and Cleaning Equipment for the Purposes of Invasive Species Prevention (Halloran, 2013)</p> <ol style="list-style-type: none"> 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. <p>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)</p>
<p>Anthropogenic Impacts – Noise</p>	<p>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.</p> <p>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.</p>
<p>Anthropogenic Impacts – Lighting</p>	<p>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.</p>



6.0 Policy Conformity

6.1 Provincial Policies

Based on the key natural heritage and/or hydrologic features identified on or adjacent to the Site and the findings of the field investigations detailed herein, the proposed development of the Site is in conformity with the PPS. Conformity with applicable natural heritage policy is summarized in Table 7.

Table 7 PPS Policy Conformity Summary

Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
Significant Wetland in Ecoregions 5E, 6E and 7E or in the Canadian Shield north of Ecoregions 5E, 6E and 7E	No	No	N/A
	Explanation: N/A		
Significant Coastal Wetland	No	No	N/A
	Explanation: N/A		
Coastal Wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b)	No	No	N/A
	Explanation: N/A		
Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)	N/A	N/A	N/A
	Explanation: N/A		
Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)	N/A	N/A	N/A
	Explanation: N/A		
Significant Wildlife Habitat (including habitat of special concern species)	Yes	Yes	2.1.5 d); 2.1.8
	Explanation: A fulsome assessment of SWH is not required for the proposed scale of development. The background review revealed the presence of Stratum I and II Deer Wintering Area is mapped on/adjacent to the Site. No impacts to deer wintering habitat are anticipated provided the recommendations included in Section 5.2 are adhered to.		



Natural Heritage / Hydrologic Feature	On Site	On Adjacent Lands	Meets Associated Policy
Habitat of Threatened and Endangered Species	Potential	Potential	2.1.7
	Explanation: Potential habitat for threatened and endangered birds, turtles, snakes, and bats was identified on/adjacent to the Site. No impacts to habitat for threatened or endangered species are anticipated provided the recommendations included in Section 5.3 are adhered to.		
Areas of Natural and Scientific Significance	No	No	N/A
	Explanation: N/A		
Watercourses / Drainage Features (permanent/intermittent)	Yes	Yes	2.2.1 f)
	Explanation: Several intermittent and seasonal drainage features were identified on the Site. No impacts to these features are anticipated provided the recommendations provided in Section 5.1 are adhered to.		
Fish Habitat	Yes	Yes	2.1.6; 2.1.8
	Explanation: No impacts to fish habitat are anticipated provided the recommendations included in Section 5.1 are adhered to.		



7.0 Summary of Mitigation, Compensation, and Best Practices

The following recommendations are provided for the proposed development:

1. All required approvals and permits should be obtained prior to the commencement of any Site alteration / construction activities.
2. All development setbacks identified herein should be included on all future Site Plans.
3. Prior to any future 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., drainage features, wetlands, Haliburton Lake) 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.
4. Future construction activities that require earthworks (e.g., grading, excavation, etc.) should be scheduled to avoid dates of heavy rainfall events and times of high runoff volumes.
5. Tree removals should occur from October 1 to March 31, outside of the combined bird breeding and bat roosting timing windows.
6. Tree removals should be limited to the proposed building envelope for each parcel.
7. 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.

8. Future construction areas should also be actively inspected for turtles and snakes each day prior to the start of work throughout the duration of construction.
9. As the Site is located adjacent to potential habitat for turtles, workers should be aware of the nesting season for turtles, which extends from May 15 to August 15. All stockpiled materials should be kept inside the exclusion fencing area and ideally should be covered and well secured around the base, to prevent turtles from nesting in loose substrates. Should any nesting turtles be encountered, work should stop immediately, and the turtle should be left to finish nesting undisturbed. The turtle should be photographed, and the nest marked to ensure it is not disturbed during construction, or until eggs have hatched (late August – September). If a nest is laid in a stockpile or other area that requires disturbance, Cambium should be contacted to determine if the nest can be relocated.
10. 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.
11. Best management practices to reduce the spread of invasive species include:
 - a) Revegetate with species native to the local area.
 - b) Request fill and compost from reputable sources that are conscious of the potential for the spread of invasive species via these media.
 - c) Get to know the most common invasive species in the area.
 - d) 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)
 - e) Immediately eradicate invasive species if they are observed on the property.



- f) Do not compost invasive species; put them in plastic bags and dispose of them in the garbage.
- g) Do not dispose of lawn or garden clippings in natural areas to avoid species introductions.

12. All equipment should be equipped with appropriate mufflers to mitigate noise levels during construction.

13. Outdoor lights should 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.



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.

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

Robin LeCraw, Ph.D.
Senior Ecologist / Project Manager



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10.0 Standard Limitations

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The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze, or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect, or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work, or reports.

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Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

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Potential liability to the client arising out of the report is limited to the amount of Cambium's professional liability insurance coverage. Cambium shall only be liable for direct damages to the extent caused by Cambium's negligence and/or breach of contract. Cambium shall not be liable for consequential damages.

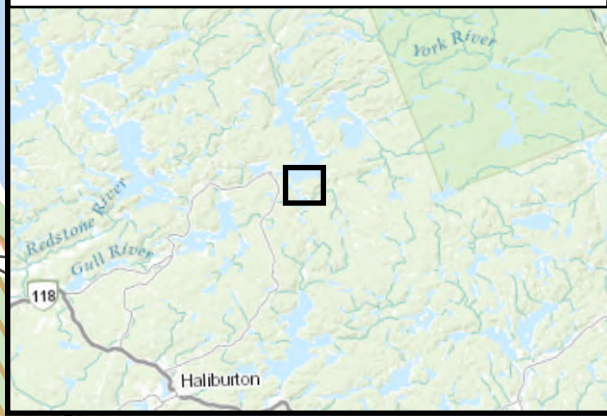
Personal Liability

The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.



Appended Figures

REGIONAL LOCATION



Haliburton Lake

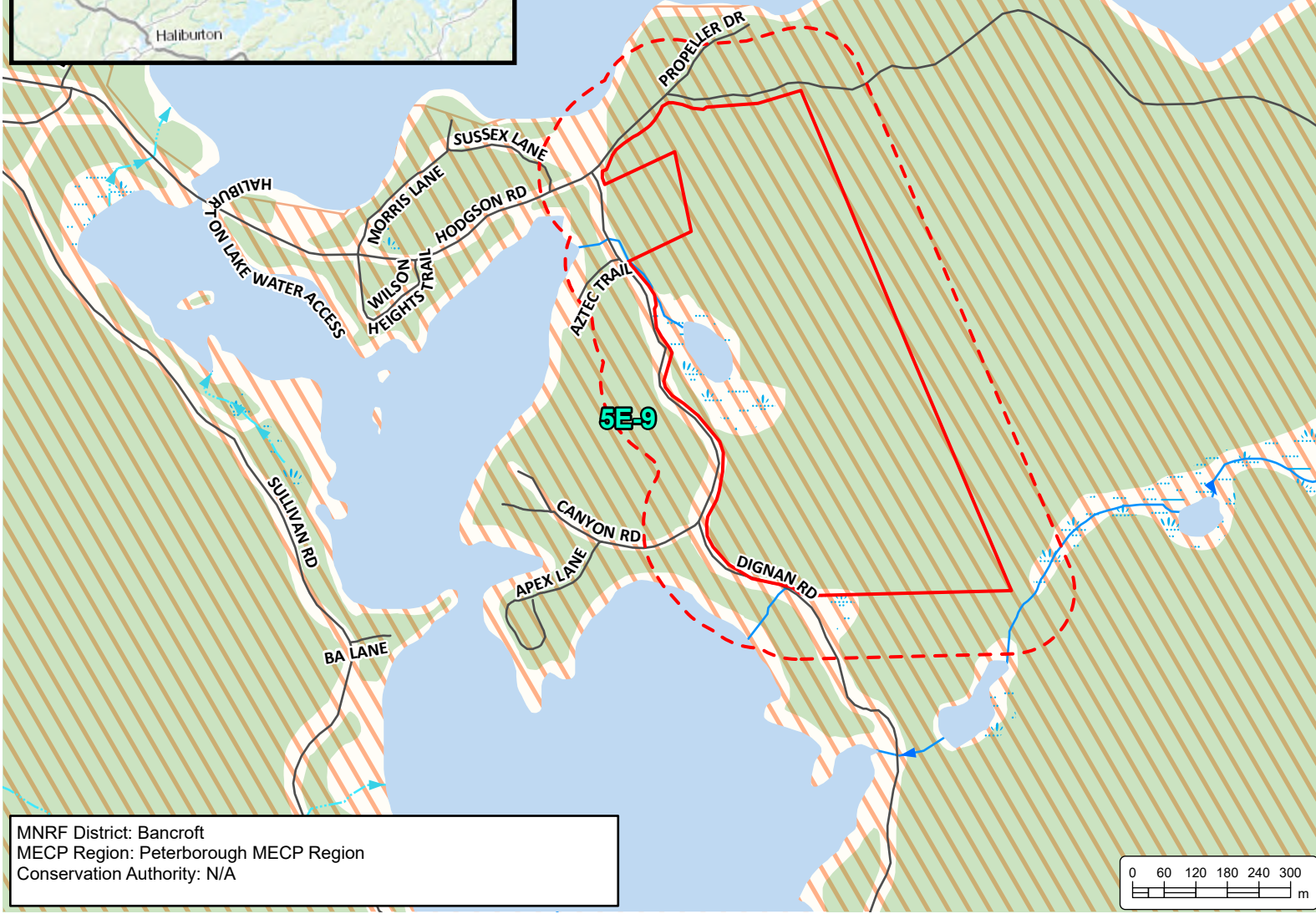


**ENVIRONMENTAL
IMPACT STUDY**

BRIAN BRUM
1273 Dignan Road,
Dysart, Ontario

LEGEND

- Minor Road
- ➔ Watercourse, Permanent
- ➔ Watercourse, Intermittent
- ⋯ Wetland Unevaluated
- Water Area
- Deer Wintering Area (Stratum 2)
- Ecodistrict
- Wooded Area
- Adjacent Lands (120m)
- Site (approximate)



Notes:
 - Base mapping features are © King's Printer of Ontario, 2022 (this does not constitute an endorsement by the Ministry of Natural Resources and Forestry or the Ontario Government).
 - Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
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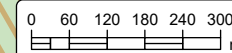


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**LANDSCAPE SETTING AND
POLICY AREAS**

Project No.: 16665-001	Date: October 2023
Scale: 1:12,000	Rev.: NAD 1983 UTM Zone 17N
Created by: DBB	Checked by: KD
Figure: 1	

MNRF District: Bancroft
MECP Region: Peterborough MECP Region
Conservation Authority: N/A



**ENVIRONMENTAL
IMPACT STUDY**
BRIAN BRUM
1273 Dignan Road,
Dysart, Ontario

LEGEND

- Whip-poor-will Survey Station
- Deer Wintering Habitat Survey Transect
- Watercourse, Permanent
- Watercourse, Intermittent
- Drainage Feature
- Verified Wetland Boundary
- Vegetation Community
- Adjacent Lands (120m)
- Site (approximate)

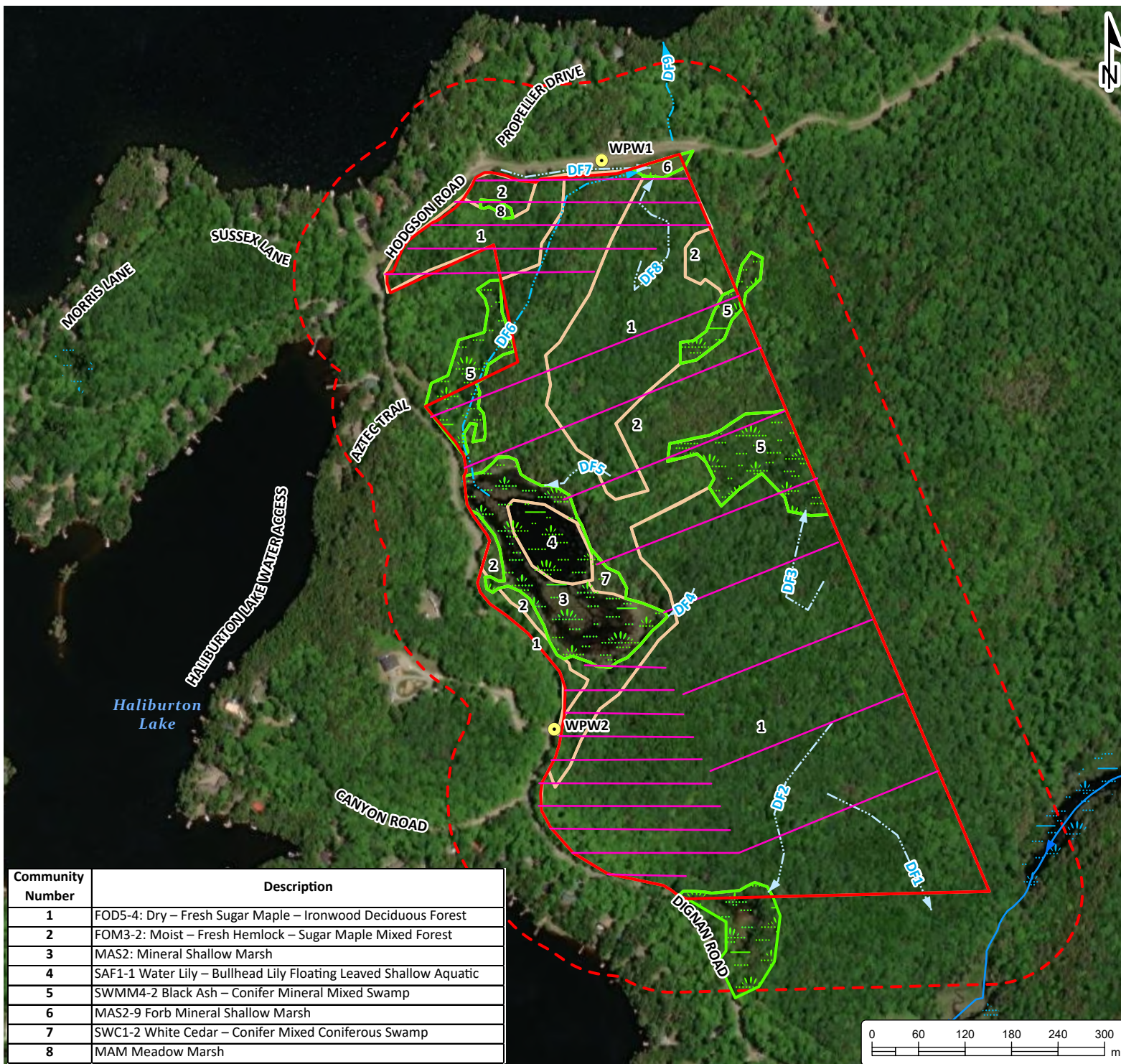
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**NATURAL HERITAGE FEATURES
AND ECOLOGICAL SURVEY
STATIONS**

Project No.: 16665-001	Date: October 2023
Scale: 1:7,000	Rev.: NAD 1983 UTM Zone 17N
Created by: DBB	Checked by: KD
Figure: 2	



Community Number	Description
1	FOD5-4: Dry – Fresh Sugar Maple – Ironwood Deciduous Forest
2	FOM3-2: Moist – Fresh Hemlock – Sugar Maple Mixed Forest
3	MAS2: Mineral Shallow Marsh
4	SAF1-1 Water Lily – Bullhead Lily Floating Leaved Shallow Aquatic
5	SWMM4-2 Black Ash – Conifer Mineral Mixed Swamp
6	MAS2-9 Forb Mineral Shallow Marsh
7	SWC1-2 White Cedar – Conifer Mixed Coniferous Swamp
8	MAM Meadow Marsh



**ENVIRONMENTAL
IMPACT STUDY**
BRIAN BRUM
1273 Dignan Road,
Dysart, Ontario

LEGEND

- Watercourse, Permanent
- Watercourse, Intermittent
- Drainage Feature
- 30m Setback
- Verified Wetland Boundary
- Development Opportunity (26.34ha approximate)
- Adjacent Lands (120m)
- Site (approximate)

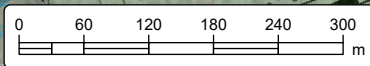
Notes:
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 - Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
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**NATURAL HERITAGE
CONSTRAINTS**

Project No.: 16665-001	Date: October 2023
Scale: 1:7,000	Rev.: NAD 1983 UTM Zone 17N
Created by: DBB	Checked by: KD
Figure: 3	



O:\GIS\MXDs\16665-001_Brian Brum - EIS - 1273 Dignan Rd Dysart et al\2023-08-11 EIS.aprx



Appendix A

Correspondence

Kristina Domsic

From: Kris Orsan <korsan@dysartetel.ca>
Sent: May 2, 2023 10:58 AM
To: Kristina Domsic; Adam Kozlowski
Cc: Cambium Admin
Subject: RE: Terms of Reference for EIS at 1273 Dignan Road, Dysart et al (Cambium Ref: 16665-001)

Good morning Kristina,

Thank you for the clarification. Perhaps this can be referenced in the EIS that further screening for endangered bat habitat was not needed, based on your initial findings.

Kind regards,

Kris.

From: Kristina Domsic <Kristina.Domsic@cambium-inc.com>
Sent: May 2, 2023 9:12 AM
To: Kris Orsan <korsan@dysartetel.ca>; Adam Kozlowski <akozlowski@haliburtoncounty.ca>
Cc: Cambium Admin <file@cambium-inc.com>
Subject: RE: Terms of Reference for EIS at 1273 Dignan Road, Dysart et al (Cambium Ref: 16665-001)

You don't often get email from kristina.domsic@cambium-inc.com. [Learn why this is important](#)

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Thank you Kris. I wanted to clarify a typo in my initial email – below the table, I meant to state that we do not believe further screening for endangered *bat habitat* is needed, based on our initial winter visit findings.

Kristina



Kristina Domsic, B.E.S (She/Her)
Project Coordinator/Ecologist

Cambium - Peterborough

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From: Kris Orsan <korsan@dysartetel.ca>
Sent: Tuesday, May 2, 2023 8:33 AM
To: Kristina Domsic <Kristina.Domsic@cambium-inc.com>; Adam Kozlowski <akozlowski@haliburtoncounty.ca>
Cc: Cambium Admin <file@cambium-inc.com>
Subject: RE: Terms of Reference for EIS at 1273 Dignan Road, Dysart et al (Cambium Ref: 16665-001)

Good morning Kristina,

Thank you for providing the EIS Terms of Reference.

Municipal (Dysart) staff do not have any comments related to the proposed approach as outlined below.

Kind regards,

Kris.

From: Kristina Domsic <Kristina.Domsic@cambium-inc.com>
Sent: May 1, 2023 2:28 PM
To: Kris Orsan <korsan@dysartet.ca>; Adam Kozlowski <akozlowski@haliburtoncounty.ca>
Cc: Cambium Admin <file@cambium-inc.com>
Subject: Terms of Reference for EIS at 1273 Dignan Road, Dysart et al (Cambium Ref: 16665-001)

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Hello Kris and Adam,

Cambium has been retained by Brian Brum (client / landowner) to conduct an Environmental Impact Study at 1273 Dignan Road (the Site; see attached maps), regarding the proposed severance of three new residential lots. We have reviewed the attached correspondence between your offices and EcoVue (project planners). We have also received several options for the layout of the severance lot lines – we understand that there is flexibility in the placement of the lines, and that the final plan will be informed by our findings; in particular, we are looking to confirm features near roads to ensure appropriate laneway access and building envelopes for each new lot.

Based on our initial review, the Site contains and/or is adjacent to (i.e., within 120 m of) the following mapped natural heritage and/or hydrologic features:

- Woodlands
- Haliburton Lake (a Lake Trout Lake; adjacent lands only)
- Two unnamed watercourses, tributaries to Haliburton Lake (on Site and adjacent lands)
- Two ponds (on Site and adjacent lands)
- Unevaluated wetlands (on Site and adjacent lands)
- Woodland (on Site and adjacent lands)
- Deer Wintering Area - Stratum I (adjacent lands only)
- Deer Wintering Area - Stratum II (on Site and adjacent lands)

Based on our current understanding of the Site and the proposed development, we propose the following Terms of Reference for the EIS:

A winter visit to confirm Deer Wintering habitat use on the Site (completed February 22, 2023) and a summer visit to confirm all other aspects, as detailed in the below Table.

Activity	Details	Timing
Vascular Plant Survey and Community Classification	Single-season vegetation survey; Ecological Land Classification (ELC) System for Southern Ontario; Communities will be evaluated for their sensitivity, rarity, and botanical quality	April to October
Wetland Boundary Delineation	One survey during the growing season; MNRF Ontario Wetland Evaluation System (OWES) protocol; boundary to be marked with hand-held GPS, and flagged/staked, where required (e.g. within 30 m of proposed development)	June to September

Activity	Details	Timing
Aquatic Habitat Survey (Rapid)	One survey under ice-free conditions; mapping and characterization of watercourses, waterbodies, springs/seeps, and other surface drainage features based on Cambium's Rapid Aquatic Habitat Assessment SOP, utilizing methods outlined in the Ontario Stream Assessment Protocol (OSAP), and Stream Flow Permanency Handbook (MNR, 2013).	March to November
Deer Wintering Survey	One survey under snow-covered conditions to document browse, tracks, scat, beds, and other sign	December to March
General Wildlife Habitat Surveys	Visual encounter surveys for evidence of breeding, foraging, sheltering, nesting, and/or movement	During all field investigations

Based on our initial findings during the winter visit, we do not believe further screening for endangered habitat is warranted (low number of cavity trees present); individuals will be protected through avoidance of tree removals during the active bat season. Based on our summer habitat findings, we will determine whether surveys for threatened Eastern Whip-poor-will should be carried out (i.e., if suitable habitat is present).

Following the field investigations, Cambium will prepare a detailed study report with supporting figures and appendices. The report will include:

- An overview of applicable natural heritage policy and regulation;
- A summary of the background information collected;
- A summary of field investigations carried out, and associated protocols;
- Descriptions of natural heritage and hydrologic features identified on and adjacent to the Site;
- A habitat-based screening for species of conservation concern (including species at risk), supplemented by targeted survey results, where applicable;
- An assessment of Deer Wintering Habitat;
- A list of additional field investigations required to address regulatory requirements, where applicable (e.g., targeted surveys for species at risk where sensitive habitat is identified through the screening process);
- An overview of the proposed development and site alteration;
- Analysis of impacts, and discussion of mitigation, restoration, and/or compensation measures required to address study requirements. Additional best management practices and/or enhancement measures may be recommended, as appropriate;
- An evaluation and summary of conformity with applicable provincial, and municipal natural heritage policy;
- A comprehensive list of recommendations, for ease of transfer to Site Plan and Draft Plan agreements;
- Detailed mapping of survey stations/areas, natural features, key species observations, and field-verified boundaries; and,
- Detailed mapping of constraint areas including development setbacks and buffers.

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

Kind Regards,

Kristina



Kristina Domsic, B.E.S (She/Her)
Project Coordinator/Ecologist

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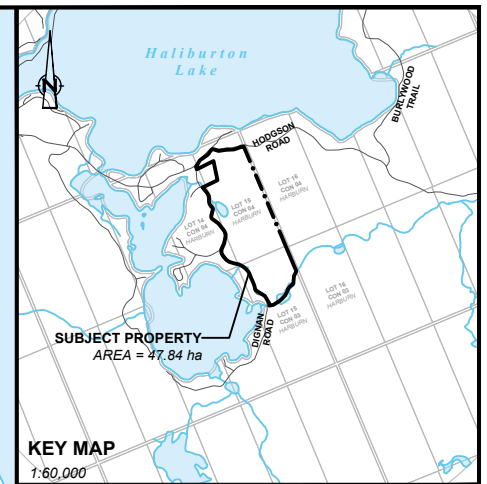
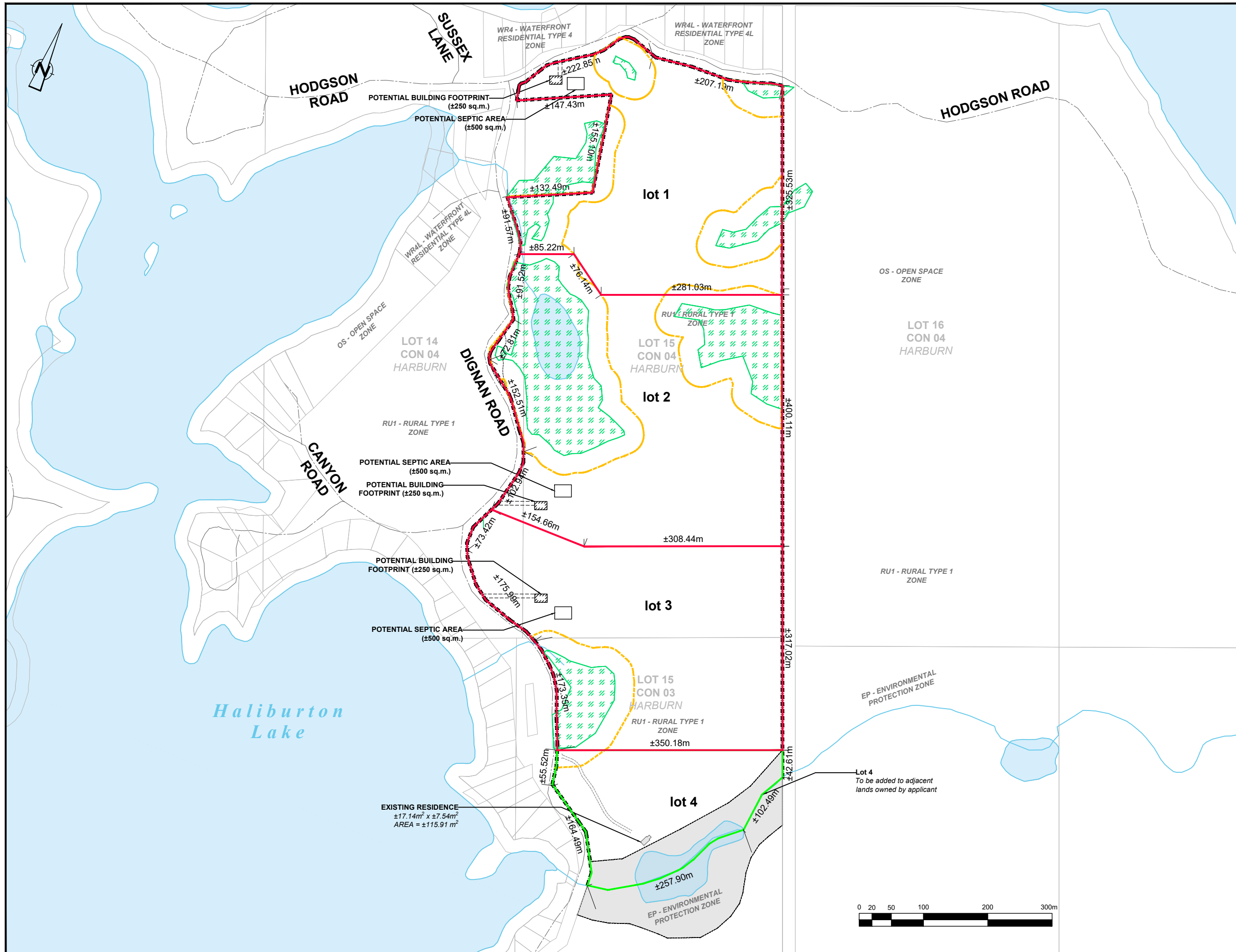


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Appendix B

Conceptual Site Plans



LEGEND

- EXISTING PARCEL
- EXISTING DRIVEWAY
- PROPOSED DRIVEWAY
- EX. CONTOUR (5m Interval, Retrieved from L.I.O.)
- EXISTING UNEVALUATED WETLANDS (Retrieved from Natural Heritage Constraints Map by Cambium - August 2023)
- 30m WETLAND/WATERBODY BUFFER (Retrieved from Natural Heritage Constraints Map by Cambium - August 2023)
- EXISTING ENVIRONMENTAL PROTECTION (EP) ZONE
- LANDS TO BE RETAINED
- LANDS TO BE SEVERED

LOT STATISTICS

PROPOSED ZONE NAME	AREA (ha.)
LOT 1	12.06
LOT 2	17.09
LOT 3	13.3
LOT 4	5.36 (To be added to adjacent lands owned by applicant)

NOTES:

- Property Boundaries are approximate

ECOVUE
consulting services inc.

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311 George St. N., Suite 200
Peterborough ON K9J 3H3
Tel: 705-876-8340 Fax: 705-742-8343
www.ecovueconsulting.com

DRAWN BY: PP	PROJECT No.: 21-2259
APPROVED BY:	HORIZ. SCALE: 1:5500
REVISION DATE: OCTOBER 13, 2023	PLOT DATE: OCTOBER 13, 2023

DIGNAN ROAD CONSENTS
BRIAN BRUM
 1273 DIGNAN ROAD
 PART OF LOT 15, CONCESSION 03
 AND
 LOT 14, 15, 16 CONCESSION 04
 GEOG. TWP. OF HARBURN
 MUNICIPALITY OF DYSEBET ET AL
 COUNTY OF HALIBURTON





Appendix C

Endangered and Threatened Species Screening



Appendix: Endangered and Threatened Species Screening - Haliburton County 5E

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Birds								
Bank Swallow	<i>Riparia riparia</i>	THR	THR	S4B	The Bank Swallow is a small songbird of around 12 cm long with a distinctive dark breast band, that flies with quick and erratic wingbeats (1). It nests in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. This can include banks of rivers and lakes, bluffs, active sand and gravel pits, road cuts and stockpiles of soils. However, they prefer sand-silt substrates for excavating their nest burrows. They often use large wetlands as communal nocturnal roosts post-breeding or during wintering periods (2).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential habitat for endangered or threatened species on-site
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	S4B	The Barn Swallow is a mid-sized songbird with steel-blue backs and wings, glossy in males, and a line of white spots across its upper tail. It lives in a variety of open habitats for foraging, such as grassy fields, pastures, certain agricultural crops, shorelines, cottage areas, wetlands, or subarctic tundra (2). They prefer to nest within human made structures such as barns, bridges, and culverts. Barn Swallow nests are cup-shaped and made of mud, typically attached to horizontal beams or vertical walls underneath an overhang (1).	No	Known to occur in the general area	No further consideration required
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	S4B	The Bobolink is a mid-sized songbird of tan colour with black stripes, except for males during summer breeding season who are black with a white back and yellow collar. It prefers tall, grassy meadows, hayfields and some croplands, and feeds (largely on insects) on the ground in dense grasses (1). It tends to nest in forage crops: hayfields and pastures dominated by species including clover, bluegrass, and broadleaf plants (2).	No	Known to occur in the general area	No further consideration required
Chimney Swift	<i>Chaetura pelagica</i>	THR	THR	S4B,S4N	The Chimney Swift is a small bird, between 12 and 14 cm, with a brown, cigar-shaped body, slender wings, and an erratic flight pattern. Prior to settlement, the Chimney Swift would mainly nest in cave walls and hollow trees. Now, it is found mostly near urban and suburban areas where the presence of chimneys or other manmade structures provide nesting and roosting habitat. They also tend to stay in habitat close to the water (1).	No	Known to occur in the general area	No further consideration required
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR	S4B	The Eastern Meadowlark is a medium-sized migratory songbird with a bright yellow throat and belly, a black V shape on its chest, and a pointed bill. It prefers pastures and hayfields, but is also found to breed in orchards, shrubby fields, human-use areas such as airports and roadsides, or other open areas. The Eastern Meadowlark can nest from early May to mid-August, in nests that are built on the ground and well-camouflaged with a roof woven from grasses (1).	No	Known to occur in the general area	No further consideration required
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	THR	THR	S4B	The Eastern Whip-poor-will is a medium-sized bird with mottled brown and grey feathers to blend in with its surroundings, a large flattened head, and small bill. They are usually found in areas with a mix of open and forested areas such as patchy forests with clearings, forests that are regenerating after major disturbances, savannahs, open woodlands or openings in more mature forests. Breeding habitat is dependent on forest structure rather than composition, although common tree associations are pine and oak, and it nests directly on the forest floor (2). The species prefers to nest in semi-open or patchy forests with clearings as it forages in open areas and uses forested areas for roosting (1).	Yes: on-site and adjacent lands	Confirmed absent through targeted surveys	No further consideration required



Appendix: Endangered and Threatened Species Screening - Haliburton County 5E

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Least Bittern	<i>Ixobrychus exilis</i>	THR	THR	S4B	The Least Bittern is a small member of the heron family, reaching around 30 cm in length. It has brown and beige plumage with chestnut patches on its wings (1). The species nests in marshes (> 5 - 10 ha) and swamps dominated by emergent vegetation, preferably cattails, interspersed with patches of woody vegetation and open water. They require dense vegetation and open water with stable levels within 10 m for nesting, and access to clear, open water for foraging (4).	No	Known to occur in the general area	No further consideration required
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	END	END	S4B	The Red-headed Woodpecker is a mid-sized bird, at around 20 cm long, with a vivid red head, neck and breast as well as a strong bill. The species can be found in open woodland and woodland edges, often near man-made landscapes such as parks, golf courses and cemeteries. These areas must contain a large number of dead trees for perching and nesting (1).	No	Known to occur in the general area	No further consideration required
Fish								
American Eel	<i>Anguilla rostrata</i>	No Status	END	S1?	The American Eel is a long, slender bodied fish, with one long fin extending down the back and around the tail, and two small pectoral fins. It has thick lips, and a protruding lower jaw that extends out above the upper jaw. At the juvenile stage, they swim up the St. Lawrence River to reach Lake Ontario and connected tributaries where they will remain for 8 to 23 years before migrating back to their spawning grounds. In Ontario, the American eel prefers mud, sand or gravel substrates during the juvenile stage when they reside primarily in the benthic zone of waterbodies. More mature eels are able to thrive in most environments provided there is available cover during daylight hours, and the habitat is accessible (2).	No	Known to occur in the general area	No further consideration required
Lake Sturgeon	<i>Acipenser fulvescens</i>	No Status	END	S2	The Lake Sturgeon, a large freshwater fish, has an extended snout with four whisker-like organs hanging near the mouth and is dark to light brown or grey on its back and sides with a lighter belly. In Ontario, this fish is found in the rivers of the Hudson Bay Basin, the Great Lakes basin, and their connecting waterways. Lake Sturgeon's live almost exclusively in freshwater lakes and rivers with soft bottoms of mud, sand or gravel and are usually found at depths of 5 to 20 m. They spawn in relatively shallow, fast-flowing water or if available deeper water habitat as well (1).	No	Known to occur in the general area	No further consideration required
Herptiles								
Blanding's Turtle	<i>Emydoidea blandingii</i>	END	THR	S3	Blanding's Turtles are identifiable by their bright yellow throat and chin and domed shell. They spend the majority of their life cycle in the aquatic environment, usually in large wetlands or shallow lakes with high densities of water plants (1). These turtles prefer shallow, nutrient rich water with organic sediment and dense vegetation. They use terrestrial sites for travel between habitat patches and to lay clutches of eggs, often going hundreds of meters from their nearest water body. Blanding's Turtles nest in dry coniferous and mixed forest habitats, as well as fields and roadsides (2). From late October until the end of April, they hibernate in the mud at the bottom of permanent water bodies (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential habitat for endangered or threatened species on-site
Spotted Turtle	<i>Clemmys guttata</i>	END	END	S2	The Spotted Turtle is named after the distinct yellow spots on its carapace. The species is semi-aquatic and prefers ponds, marshes, bogs and even ditches with slow-moving, unpolluted water and an abundant supply of aquatic vegetation. This species usually hibernates in wetlands or seasonally wet areas with structures such as overhanging banks, hummocks, tree roots, or aquatic animal burrows (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential habitat for endangered or threatened species on-site



Appendix: Endangered and Threatened Species Screening - Haliburton County 5E

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Wood Turtle	<i>Glyptemys insculpta</i>	THR	END	S2	The Wood Turtle has orange coloured front legs, neck and chin and a sculpted carapace with raised, pyramidal scutes (5). They prefer clear rivers and streams that have moderate current, and sandy or gravelly substrates. This species spends more time on land than other turtle species including in meadows, swamps and fields. Wooded areas are an essential habitat component, and the species uses aquatic habitats for hibernation and mating. Nesting occurs in areas with sandy soil and abundant light (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential habitat for endangered or threatened species on-site
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	THR	THR	S3	The Eastern Hog-nosed Snake can be a variety of colours and patterns so is most easily identified by its flattened, upturned nose. They prefer sandy well-drained habitats such as beaches and dry forests because they lay their eggs, hibernate and burrow in these areas. The main diet of this snake is toads and frogs, so they usually stay close to water including marshes and swamps, where they have an increased chance of finding their preferred prey (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential habitat for endangered or threatened species on-site
Mammals								
Tri-colored Bat	<i>Perimyotis subflavus</i>	END	END	S3?	The Tri-colored Bat is small, with pale brown with orange-red forearms, muzzle, and ears. It is named for the black, yellow, and brown hairs on its back. It is considered rare in this region of Ontario which is at the northernmost limit of the natural range. These bats prefer to nest in foliage, tree cavities and woodpecker holes, but are occasionally found in buildings; though this is not their preferred habitat. Winter hibernation takes place in caves, mines and deep crevices. Tri-colored Bats prefer an open forest habitat type in proximity to water (6).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential habitat for endangered or threatened species on-site
Eastern Small-footed Myotis	<i>Myotis leibii</i>	No Status	END	S2S3	The Eastern Small-footed Myotis has fur with black roots and shiny brown tips as well as very small feet. In the spring and summer, the Eastern Small-footed Myotis will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. They change their roosting locations daily and hunt at night for insects. They hibernate in winter, often in caves and abandoned mines choosing colder and drier sites than other similar bats (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential habitat for endangered or threatened species on-site
Little Brown Myotis	<i>Myotis lucifugus</i>	END	END	S4	The Little Brown Myotis has glossy brown fur and a fleshy projection covering the entrance to its ears. This species roosts in trees and buildings, often selecting attics, abandoned buildings and barns for summer colonies where they can raise their young. Little Brown Bats hibernate from October/November to March/April, most often in caves or abandoned mines that are humid and remain above freezing (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential habitat for endangered or threatened species on-site
Northern Myotis	<i>Myotis septentrionalis</i>	END	END	S3	The Northern Myotis has dull yellow-brown fur with pale bellies and long, rounded ears. This species is found in boreal forests, roosting under loose bark and in the cavities of trees. These bats hibernate from October/November to March/April, most often in caves or abandoned mines (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential habitat for endangered or threatened species on-site
Algonquin Wolf	<i>Canis lycaon</i>	SC	THR	S4	Formerly called the Eastern Wolf, this canine was recently renamed the Algonquin Wolf. In the southern portion of the province, this species prefers deciduous and mixed forest landscapes while their northern range include mixed and coniferous forests. It is most prevalent in areas with abundant prey species which include Beaver, White-tailed Deer and Moose. Dens sites are usually found in coniferous forests with easily excavated soil types like sand and close to a permanent water source (1).	Yes: on-site and adjacent lands	Known to occur in the general area	Potential habitat for endangered or threatened species on-site



Appendix: Endangered and Threatened Species Screening - Haliburton County 5E

COMMON NAME	SCIENTIFIC NAME	Federal SARA	Provincial SARO	S-RANK	SPECIES DESCRIPTION AND HABITAT REQUIREMENTS	SUITABLE HABITAT	SPECIES OBSERVATIONS	ASSESSMENT
Trees, plants, fungi and lichens								
American Ginseng	<i>Panax quinquefolius</i>	END	END	S2	American Ginseng is a perennial plant which grows up to 60 centimetres in height. The leaves typically have five leaflets arranged in a whorl at the end of the leaf stem. The root looks like a gnarly parsnip. The flowers are an inconspicuous green-white in colour, but the berries are bright red and arranged in a cluster. In Ontario, the American Ginseng typically grows in rich, moist, and mature deciduous woods dominated by Sugar Maple, White Ash, and American Basswood. It typically grows in deep, nutrient rich soil over limestone or marble bedrock (1).	No	Confirmed absent through targeted surveys	No further consideration required
Black Ash	<i>Fraxinus nigra</i>	No status	END	S4	The Black Ash is a smaller-sized tree with a narrow crown, light grey and scaly bark, and green, oval leaflets on a central stalk. It grows everywhere in Ontario except for the far north, preferring moist climates and soils such as swampy woodlands or bogs (1).	Yes: on-site	Confirmed habitat on-site through targeted surveys	Consideration required under the ESA
Butternut	<i>Juglans cinerea</i>	END	END	S2?	The Butternut is a medium sized tree reaching 30 m in height. It has large compound leaves with 11 to 17 leaflets. The fruit is oval, fuzzy and sticky. In Ontario, the Butternut prefers moist, well-drained soil, often along streams, or occasionally well-drained gravel sites. It grows alone or in small groups in deciduous forests (1).	No	Confirmed absent through targeted surveys	No further consideration required
Pale-bellied Frost Lichen	<i>Physconia subpallida</i>	END	END	S3	The Pale-bellied Frost Lichen resembles a light dusting of frost on a dark tree trunk. This species is found throughout eastern North America, growing in wooded areas rich in hardwood species, such as White Ash, Hop Hornbeam (Ironwood), Black Walnut, and American Elm. It is also common to find this species growing on fenceposts or boulders within or near these wooded areas. In Ontario, this species has been found in the following counties: Frontenac, Haliburton, Hastings, Peterborough, Lanark and Renfrew (1).	No	Confirmed absent through targeted surveys	No further consideration required

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Appendix D

Photographic Log



Photo 1 Seasonal Drainage Feature DF1, July 2023.



Photo 2 Seasonal Drainage Feature DF2, July 2023.



Photo 3 Seasonal Drainage Feature DF3, July 2023.



Photo 4 Seasonal Drainage Feature DF4, July 2023.



Photo 5 Seasonal Drainage Feature DF6, July 2023.



Photo 6 Seasonal Drainage Feature DF8, July 2023.



Photo 7 ELC Community 1 (FOD5-4), July 2023.



Photo 8 ELC Community 1 (FOD5-4), July 2023.



Photo 9 ELC Community 2 (FOM3-2), July 2023.



Photo 10 ELC Community 3 (MAS3-3), July 2023.



Photo 11 ELC Community 3 (MAS3-3), July 2023.



Photo 12 ELC Community 4 (OAO), July 2023.



Photo 13 ELC Community 5 (SWD2-1), July 2023.



Photo 14 ELC Community 5 (SWD2-1), July 2023.



Appendix E

Vegetation Species List



Appendix: Vegetation Community and Inventory

Common Name (Latin Name)	Vegetation Community							Rarity/Status ²			CoC	CoW
	1	2	3	4	5	6	7	Federal	Provincial			
								SARA	SARO	S-Rank		
American Beech (<i>Fagus grandifolia</i>)	X									S4	6	3
American Hog-peanut (<i>Amphicarpaea bracteata</i>)	X									S5	4	0
Balsam Fir (<i>Abies balsamea</i>)	X						X			S5	5	-3
Bittersweet Nightshade (<i>Solanum dulcamara</i>)						X				SNA	0	0
Black Ash (<i>Fraxinus nigra</i>)					X			No status	END	S3	7	-3
Bladder Sedge (<i>Carex intumescens</i>)			D							S5	6	-3
Blue Cohosh (<i>Caulophyllum thalictroides</i>)	X									S5	5	5
Bluejoint Reedgrass (<i>Calamagrostis canadensis</i>)			X							S5	4	-5
Canada Mint (<i>Mentha canadensis</i>)			X							S5	3	-3
Carolina Spring Beauty (<i>Claytonia caroliniana</i>)	X									S5	7	3
Common Bladderwort (<i>Utricularia vulgaris</i>)			X	X						S5	4	-5
Common Boneset (<i>Eupatorium perfoliatum</i>)						X				S5	2	-3
Common Lady Fern (<i>Athyrium filix-femina</i>)					X					S5	4	0
Dark-green Bulrush (<i>Scirpus atrovirens</i>)			X							S5	3	-5
Drooping Sedge (<i>Carex prasina</i>)			X							S4	10	-5
Eastern Bracken Fern (<i>Pteridium aquilinum</i> var. <i>latiusculum</i>)	X									S5	2	3
Eastern Hemlock (<i>Tsuga canadensis</i>)	X	X								S5	7	3
Eastern Hop-hornbeam (<i>Ostrya virginiana</i>)	X									S5	4	3
Eastern Teaberry (<i>Gaultheria procumbens</i>)	X									S5	6	3
Eastern White Cedar (<i>Thuja occidentalis</i>)	X						X			S5	4	-3
Eastern White Pine (<i>Pinus strobus</i>)	X									S5	4	3
Fragrant Water-lily (<i>Nymphaea odorata</i>)			X	X						S5	5	-5
Hobblebush (<i>Viburnum lantanooides</i>)	X				X					S5	8	0
Leatherleaf (<i>Chamaedaphne calyculata</i>)			X							S5	9	-5
Marginal Wood Fern (<i>Dryopteris marginalis</i>)	X									S5	5	3
Marsh Fern (<i>Thelypteris palustris</i>)			X							S5	5	-3
Narrow-leaved Cattail (<i>Typha angustifolia</i>)			X			X				SNA	0	-5
Northern Red Oak (<i>Quercus rubra</i>)	X									S5	6	3
Northern Starflower (<i>Lysimachia borealis</i>)		X								S5	6	0
Northern Watermeal (<i>Wolffia borealis</i>)			X							S5	4	-5
Paper Birch (<i>Betula papyrifera</i>)					X					S5	2	3
Pennsylvania Sedge (<i>Carex pensylvanica</i>)	X									S5	5	5
Purple-stemmed Aster (<i>Symphotrichum puniceum</i>)						X				S5	6	-5
Red Baneberry (<i>Actaea rubra</i>)	X									S5	6	3
Red Maple (<i>Acer rubrum</i>)	X	X								S5	4	0
Red-osier Dogwood (<i>Cornus sericea</i>)			X							S5	2	-3
Red-tinged Bulrush (<i>Scirpus microcarpus</i>)			X							S5	4	-5
Reed Canarygrass (<i>Phalaris arundinacea</i>)			X			D				S5	0	-3
Rose Twisted-stalk (<i>Streptopus lanceolatus</i>)	X									S5	7	3



Appendix: Vegetation Community and Inventory

Common Name (Latin Name)	Vegetation Community							Rarity/Status ²			CoC	CoW
	1	2	3	4	5	6	7	Federal	Provincial			
								SARA	SARO	S-Rank		
Sensitive Fern (<i>Onoclea sensibilis</i>)						X	X			S5	4	-3
Small Duckweed (<i>Lemna minor</i>)			X							S5?	5	-5
Speckled Alder (<i>Alnus incana</i> ssp. <i>rugosa</i>)			X		X	X				S5	6	-3
Spotted Jewelweed (<i>Impatiens capensis</i>)			X		X	X				S5	4	-3
Spotted Joe Pye Weed (<i>Eutrochium maculatum</i>)			X			X				S5	3	-5
Striped Maple (<i>Acer pensylvanicum</i>)					X					S4	7	3
Sugar Maple (<i>Acer saccharum</i>)	X	X								S5	4	3
Swamp Milkweed (<i>Asclepias incarnata</i>)			X							S5	6	-5
Tamarack (<i>Larix laricina</i>)							X			S5	7	-3
Three-way Sedge (<i>Dulichium arundinaceum</i>)			X							S5	7	-5
Watershield (<i>Brasenia schreberi</i>)			X	X						S5	7	-5
White Trillium (<i>Trillium grandiflorum</i>)	X									S5	5	3
Wild Lily-of-the-Valley (<i>Maianthemum canadense</i>)	X									S5	5	3
Wild Sarsaparilla (<i>Aralia nudicaulis</i>)	X									S5	4	3
Wild Strawberry (<i>Fragaria virginiana</i>)	X									S5	2	3
Yellow Clintonia (<i>Clintonia borealis</i>)		X								S5	7	0
Yellow Trout-lily (<i>Erythronium americanum</i>)	X									S5	5	5

Notes:

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

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

SARA - Species at Risk Act

SARO - Species at Risk in Ontario

SC - Special Concern

THR - Threatened

END - Endangered

NAR - Not at risk

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

S1 - Extremely rare in Ontario

S2 - Very rare in Ontario

S3 - Rare to uncommon in Ontario

S4 - Considered to be common in Ontario

S5 - Species is widespread in Ontario

SNA - Not Applicable (typically introduced species)

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