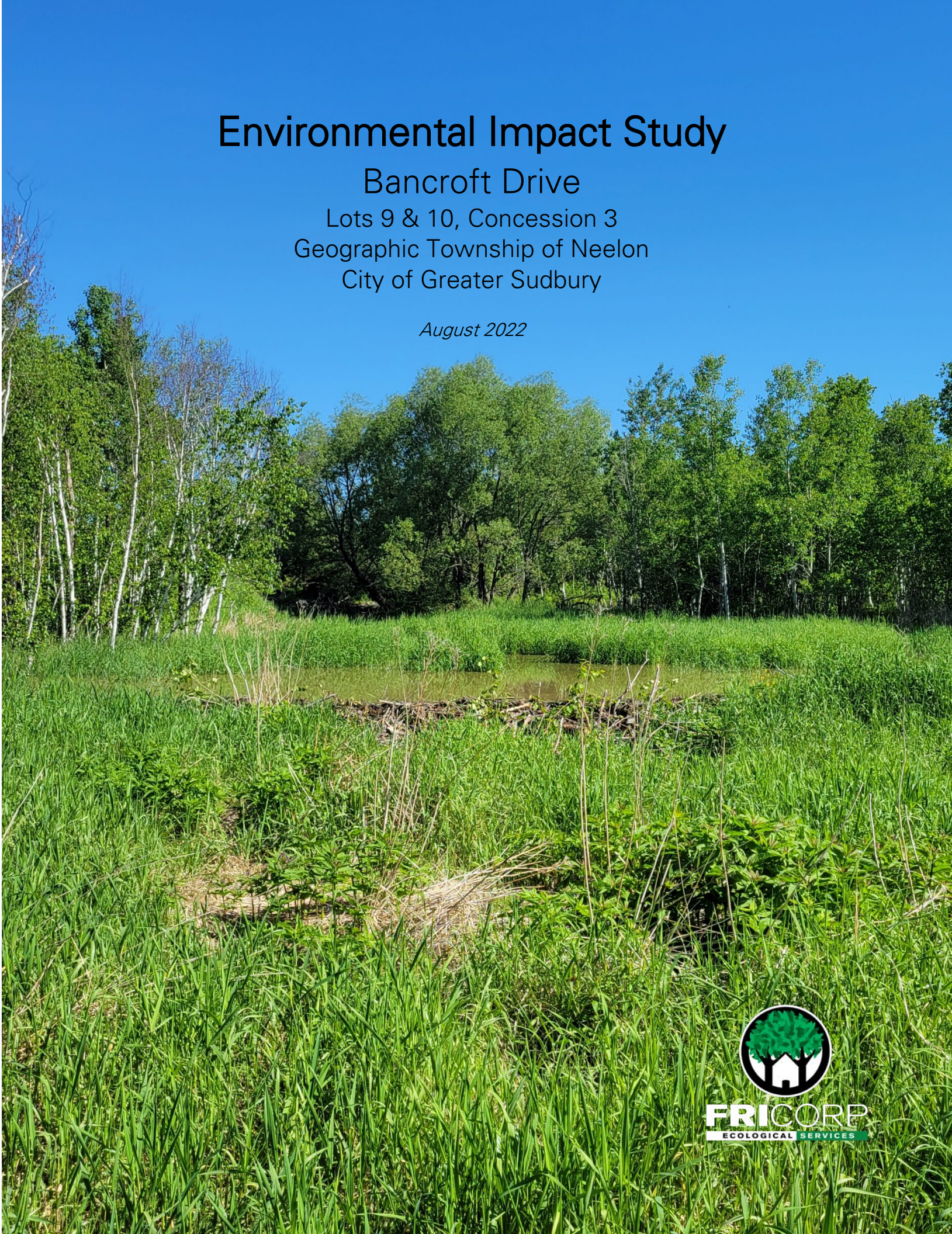
Environmental Impact Study

Bancroft Drive

Lots 9 & 10, Concession 3
Geographic Township of Neelon
City of Greater Sudbury

August 2022



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ECOLOGICAL SERVICES

Contents

1.0 Introduction

FRi Ecological Services was retained to complete an Environmental Impact Study (EIS) to assess the presence of and potential impacts to the natural heritage features and functions related to a proposed subdivision in the City of Greater Sudbury. The necessary field work and reporting was completed to meet the requirements under the *Provincial Policy Statement* (PPS) (2020), the City of Greater Sudbury Official Plan (adopted in 2006, last revised in 2022), the *Fisheries Act* (1985), *Fish and Wildlife Conservation Act* (1997), *Endangered Species Act* (ESA) (2007), *Migratory Birds Convention Act* (1994) and other relevant legislation and policies.

1.1 Background Information

A proposed 5-lot residential development is proposed on a 5.7ha parcel in Lots 9 and 10, Concession 3, in the Geographic Township of Neelon in the City of Greater Sudbury (Figure 1).

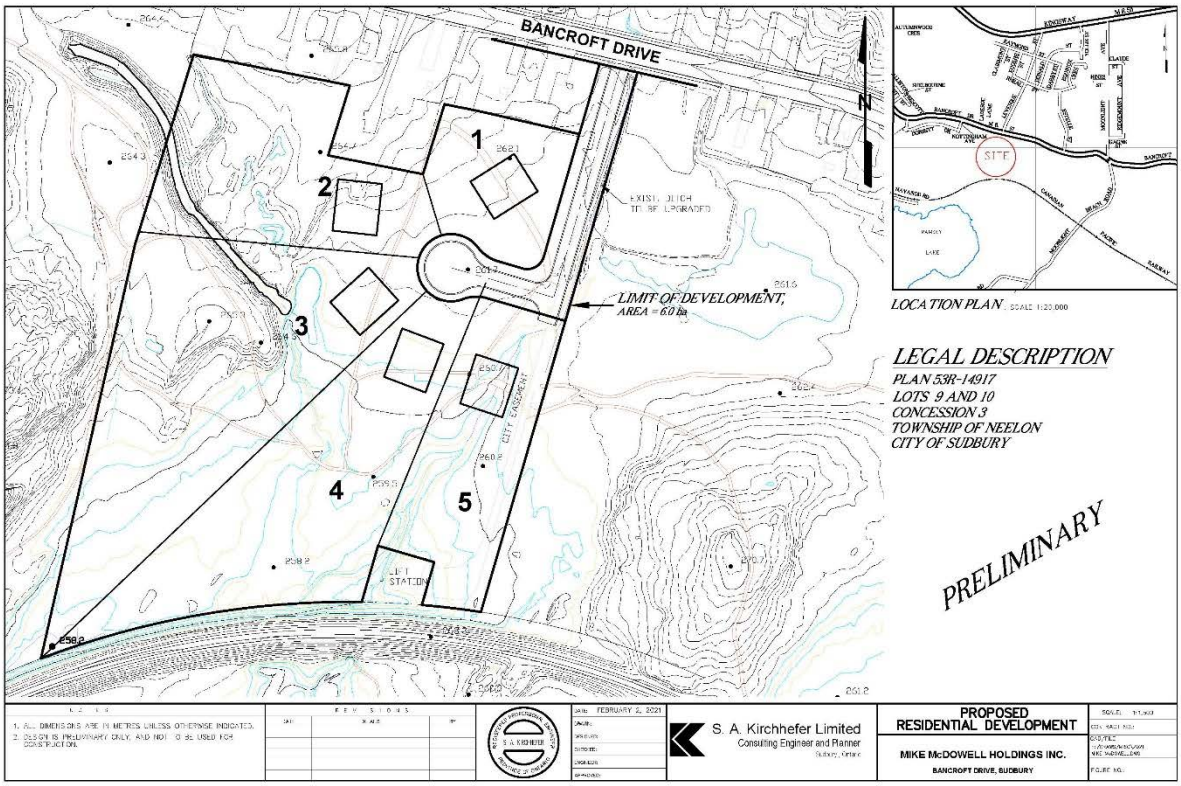

Figure 1: Location of proposed subdivision and lots on the subject property

The property is bounded by Bancroft Drive and residential development to the north, CP rail line to the south, and a city easement and vacant land to the east. To the west are residential and commercial developments and vacant, forested land. Outside of The City's easement and informal ATV trails, there does not appear to be any existing development on the property or any historical uses.

The subject property and the surrounding landscape are situated in Ecodistrict 5E-4. This district contains lowlands with silt and sand lying between shallowly covered ridges. The underlying bedrock is generally a granitic igneous rock. The bedrock of this ecodistrict is composed mainly of Precambrian rocks of the Grenville Structural Province that were formed at least 2500 million years ago. These rocks have been strongly metamorphosed, folded, and then intruded by igneous rocks. The oldest and most abundant rocks of the metamorphic complex, metasediments, are derived largely from siliceous sandstones and siltstones and can be found throughout most of the area.

1.2 Field Investigations

Field investigations were carried out on April 11, May 5 and 13, June 6, 7, 14, and July 9, 2022. The weather was generally warm and sunny to partly cloudy with no precipitation during site visits. A total of 8 field visits were conducted for this property within the Spring and Summer seasons of 2022.

The following natural heritage features and associated ecological functions on or within 120 meters* of the property boundary were evaluated and potential impacts assessed:

a) Habitat of endangered and threatened species
b) Significant wetlands
c) Significant wildlife habitat
d) Significant areas of natural and scientific interest (ANSIs),
e) Fish habitat

**Note that the majority of the 120 meter adjacent area is private property. Field investigators did not have permission to access private property; therefore, observations of these areas were done from within the boundary of the proposed development*

2.0 Ecological Setting

The study area is located within the Georgian Bay Ecoregion (5E) of Ontario, Ecodistrict 5E-4 Sudbury. The climate in this ecoregion is cool, temperate, and humid; with mean annual temperatures ranging from 2.8˚C to 6.2˚C and a growing season between 183 to 219 days. Mean precipitation ranges between 771 and 1134 mm annually.[1]
The ecodistrict is situated on the Precambrian Shield and are predominantly underlain by igneous and metamorphic rock. This undifferentiated rock is exposed at the surface or covered by a thin, irregular layer of drift. Glaciofluvial deposits of sand and gravel are scattered throughout with topography described as gently to moderately rolling uplands

[1] Crins, William J., Paul A. Gray, Peter W.C. Uhlig, and Monique C. Wester. 2009. The Ecosystems of Ontario, Part 1: Ecozones and Ecoregions. Ontario Ministry of Natural Resources, Peterborough Ontario, Inventory, Monitoring and Assessment. 71pp.

of shallow soils and bedrock knobs with interspersed sand-filled depressions. Site-specific ecosites represented on the subject property and adjacent lands were identified during field investigations; each described below.

2.1 Ecological Land Classification

Ecological land classification is determined by assessing the soil and vegetation characteristics of a site and deducing its local ecosite. Potential habitat and natural heritage features. To assess the presence of potential habitat and natural heritage features, including species at risk and significant wildlife habitat, the ecosites on the property were determined during the field investigations.

Through field investigations and mapping, six natural ecosites and one anthropogenic ecosite (G198X) were found to be present on the subject property (Figure 2). The representative ecosites were determined for the proposed development area. They are assumed contiguous beyond the 120-meter information area boundary. The natural ecosites are detailed with representative photos in the sections below.

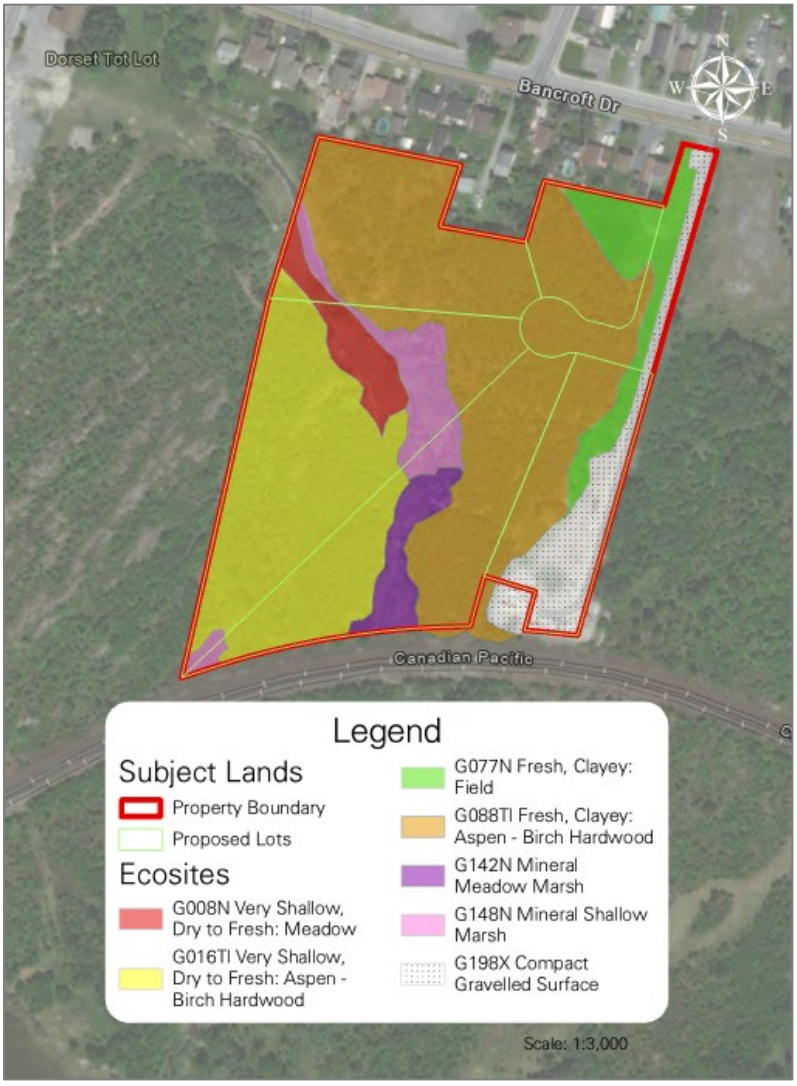

Figure 2: Ecological land classification – ecosites present on subject property

Ecosites

Ecosite 1: G008N Very Shallow, Dry to Fresh: Meadow

This ecosite is found along the western bank of the watercourse flowing through the property. The ecosite is mostly graminoid species with trees and shrubs mostly absent.

Photo 1: Representative photo of the G008N ecosite

Ecosites 2&3: G016TI Very Shallow, Dry to Fresh & G088TI Fresh, Clayey: Aspen – Birch Hardwood

There are two areas on the property mapped as Aspen – Birch Hardwood, with shallow soils and clayey mineral soils. These low-treed vegetation communities comprise most of the subject lands. The mineral soils are shallow on the west side of the property and very fine and clayey towards the east, with dominant tree species including aspen and birch in the canopy. Understory species and herbaceous vegetation includes low sweet blueberry, bracken fern, and Canada mayflower.

Photos 2 and 3: Representative photo of the G016TI & G088TI ecosites

Ecosite 4: G077Tt: Fresh, Clayey: Field

This ecosite appears to be maintained by human activity with mostly graminoid species, white and red clover, some sedges, and wildflowers.

Photo 4: Representative photo of the G077Tt ecosite

Ecosite 5: G142N Mineral Meadow Marsh

This ecosite is located the south-central portion of the property and is dominated by grasses, forbs, some shrubs and a watercourse flowing in a southerly direction.

Photos 5 and 6: Representative photos of the G142N ecosite

Ecosite 6: G148N: Mineral Shallow Marsh

This ecosite is found in two distinct areas at the north and south ends of the property; 1.12ha and 1.62ha in size, respectively and is associated with areas of open, ponded water. The ecosite contains pond weed (*Elodea canadensis*), *Typha sp.* (cattails), water arum (*Calla palustris*), and duckweed spp. (*Lemnoideae*).

Photos 7 and 8: Representative photo of the G148N ecosite

Ecosite 7: G198X Compact Gravelled Surface

This anthropogenic ecosite is found to the east of the subject property and is represented by a compact aggregate surface.

Photo 9 and 10: Representative photo of the G198X ecosite

3.0 Habitat of Endangered and Threatened Species

A desktop review of the available information was conducted in advance of field investigations. This review included the Natural Heritage Information Centre database and other publicly available databases (e.g. eBird).

An initial list of species for consideration was generated and subsequently scoped following initial habitat (ecosite) investigations. Where there was potential for species habitat on or within 120 meters of the site, applicable species-specific surveys were undertaken in the spring and summer months during favourable conditions. The following species were considered: Blanding's turtle, Chimney Swift, Eastern Hog-nosed Snake, Eastern Whip-poor-will, and SAR Bats (Little Brown Myotis, Northern Myotis).

3.1 Blanding's Turtle (*Emydoidea blandingii*)

The Blanding's turtle is a mostly aquatic turtle found in a variety of habitats, including lakes, ponds, marshes, ditches, creeks, rivers, and bogs. Within these habitats, the species generally prefers shallow water, organic substrates and dense submergent and/or emergent vegetation. Basking sites are a critical component of suitable habitat. These are characteristically floating vegetation mats, hummocks, partially submerged logs, rocks, bog mats, or suitable shoreline areas with access to full sunlight. Blanding's turtles hibernate from October through April, usually in permanent bodies of water, often

the same wetlands they utilize during the active season. Recent studies confirm seasonally isolated wet areas, ditches for example, are used for hibernacula in some years.

Blanding's turtles will travel up to 6 km or more to nesting sites that are usually within 250 m from the shore of some waterbody. Nesting activities generally occur at the end of June through the beginning of July. Nest sites are chosen in areas that offer suitable substrate for digging (e.g. loose soil), well-drained, open locations which increases the incubation temperatures because of sunlight exposure. This in turn increases nest success. Upland areas adjacent wetlands can be used for nesting, basking and travel between summer activity areas. Turtles regularly move up to 1 km between wetlands and will chose a 'wetted' corridor, rather than a direct route.[2] [3] [4] [5] [6]

Basking surveys for Blanding's turtles were conducted in 2022 in April, May, and June during suitable basking conditions. Weather conditions were generally warm and sunny, although turtles can also be observed on muggy cloudy days as well. The *Occurrence Survey Protocol for Blanding's Turtle (*Emydoidea blandingii*) in Ontario* (OMNR, 2013) was followed; and additional survey effort was undertaken because of the known occurrences.

The survey locations are noted in Figure 4; and represent combined survey locations for all semi-aquatic turtles (Blanding's, snapping, and painted turtles). Despite suitable survey conditions (see Table 1 below) and experienced surveyors, no Blanding's turtles nor turtles of any species were observed during any of the surveys or incidentally during field investigations in or around the wetlands and upland areas.

[2] COSEWIC 2005. COSEWIC assessment and update status report on the Blanding's Turtle *Emydoidea blandingii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 40 pp. (www.sararegistry.gc.ca/status/status_e.cfm)
[3] Edge, C. B. 2008. Multiple Scale Habitat Selection by Blanding's Turtles (*Emydoidea blandingii*). Master's Thesis. School of Graduate Studies, Laurentian University.
[4] Ontario Ministry of Natural Resources. 2012. Survey Protocol: Blanding's Turtle (*Emydoidea blandingii*). Policy Division, Species at Risk Branch. 15pp.
[5] Seburn, D. C. 2007. Recovery Strategy for Species at Risk Turtles in Ontario. Ontario Multi-Species Turtles at Risk Recovery Team. 83pp.
[6] Ontario Ministry of Natural Resources. 2013. General Habitat Description for the Blanding's turtle (*Emydoidea blandingii*).

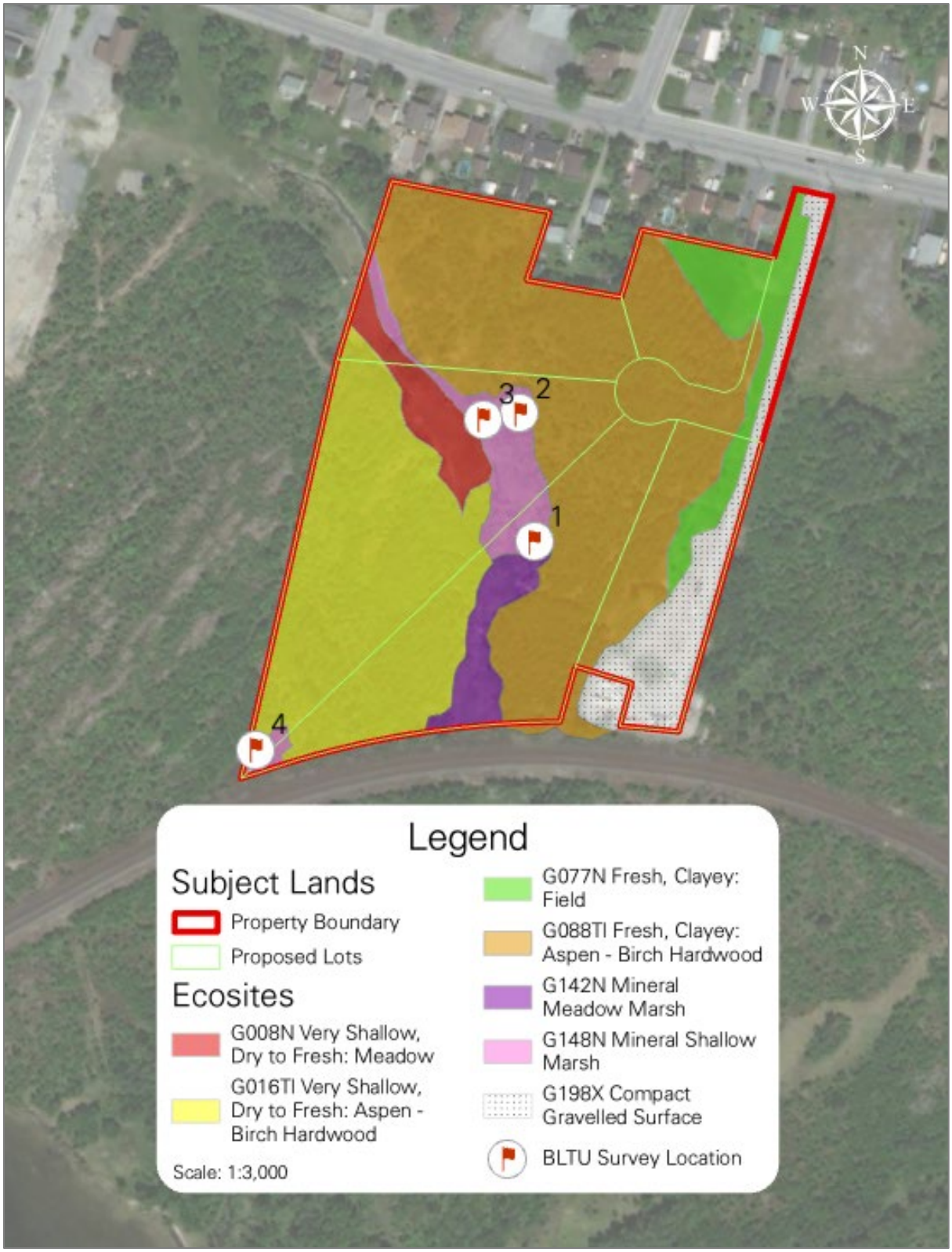

Figure 3: Location of Blanding's turtle survey stations on the subject property

Table 1: Weather conditions and summary for turtle basking surveys (2022)

Survey Date	Air Temp	Water Temp	% Cloud	Precip	Effort	Observations
April 11	8 °C	4°C	5%	None	3 stations; ~20 min each	Stn 1: no turtles observed Stn 2: no turtles observed Stn 3: no turtles observed Stn 4: no turtles observed
May 5	14°C	6°C	Overcast	None	3 stations; ~20 min each	Stn 1: no turtles observed Stn 2: no turtles observed Stn 3: no turtles observed Stn 4: no turtles observed
May 13	24 °C	11°C	0%	None, sunny, clear	3 stations; ~20 min each	Stn 1: no turtles observed Stn 2: no turtles observed Stn 3: no turtles observed Stn 4: no turtles observed
May 24	17°C	9°C	25%	None	3 stations; ~20 min each	Stn 1: no turtles observed Stn 2: no turtles observed Stn 3: no turtles observed Stn 4: no turtles observed
May 31	28°C	15°C	10%	None	3 stations; ~20 min each	Stn 1: no turtles observed Stn 2: no turtles observed Stn 3: no turtles observed Stn 4: no turtles observed
June 6	13°C	12°C	0%	None	3 stations; ~20 min each	Stn 1: no turtles observed Stn 2: no turtles observed Stn 3: no turtles observed Stn 4: no turtles observed
June 14	25°C	18°C	0%	None	3 stations; ~20 min each	Stn 1: no turtles observed Stn 2: no turtles observed Stn 3: no turtles observed Stn 4: no turtles observed

BLTU = Blanding's turtle, PATU = midland painted turtle, SNTU = snapping turtle

Consistent with the general habitat description for Blanding's turtles[7] and the general direction for categorizing and protecting habitat[8], any suitable wetlands within 2km from a confirmed observation of a Blanding's Turtle and the area 30m from the wetland edge would be considered Category 2 BLTU habitat.

3.2 Chimney Swift (*Chaetura pelagica*)

Chimney swifts are an aerial insectivore; commonly seen foraging over open areas and wetlands. According to the Chimney Swift COSEWIC Status Report (2007), cavity trees with a diameter breast height (DBH) greater than 50 cm are required for nesting. Common tree species hosting nesting or roosting sites are white pine, yellow birch and

[7] General Habitat Description for the Blanding's Turtle (*Emydoidea blandingii*). OMNR 2013.
[8] Categorizing and Protecting Habitat under the Endangered Species Act. OMNR 2012.

sometimes aspen. While not comm on, pileated woodpecker cavities are sometimes used for nesting and roosting. Communities supporting trees >50 cm DBH and pileated woodpecker cavities are typical of old growth forests.

More typically, swifts nest and roost in human-created structures such as brick chimneys. At times, especially during migration and inclement weather, roosts may host hundreds or even thousands of birds. Structures functioning as nest features are usually occupied by a single breeding pair. Breeding pairs exhibit high site fidelity for structures used as nests and roosts and will continue to use these features as long as they are functional. In Ontario, swifts return in late April through early May and breed May through July. Migration begins in late August and is usually complete by mid-October. The loss of artificial nest features (brick chimneys) has resulted in significant population declines over a short time period. Secondarily, the loss of old growth forests and large cavity trees has resulted in fewer natural nesting (and roosting) structures. [9] [10] [11] [12] [13]

The site was surveyed for potentially suitable habitat during leaf off condition in April 2022 at the same time as field investigations for suitable bat roosts. Most forested ecosites on the property appear to be second-growth and there were no suitable roost trees. Field investigations confirmed the absence of suitable nesting and roosting habitat for chimney swift on the site which strictly meet the definition noted above. Visual observations with binoculars failed to observe any broken tops or cavities. More importantly, no chimney swifts were observed foraging over the property during any of the field visits. Nesting chimney swifts with young will visit the nest approximately every 20 minutes. Turtle and marsh bird surveys were conducted adjacent the wetland, no swifts were observed despite the significant time spent where they would expect to be foraging. No impacts to swifts or their habitat are expected; no mitigation is recommended.

3.3 Eastern Hog-nosed Snake (*Heterodon platirhinos*)

Eastern Hog-nosed snakes are known to be present with in the Sudbury District. Figure 4, an excerpt from *The Snakes of Ontario: Natural History, Distribution, and Status*[14], depicts the approximate range of Eastern Hog-nosed snakes. Although the species is

[9] OMNR. 2013. General Habitat Description for the Chimney Swift. http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@species/documents/document/mnr_sar_ghd_chmny_swft_en.pdf
[10] http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=951
[11] http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_CHMNY_SWFT_EN.html
[12] Cink, Calvin L. and Charles T. Collins. 2002. Chimney Swift (*Chaetura pelagica*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/646
[13] COSEWIC 2007. COSEWIC assessment and status report on the Chimney Swift *Chaetura pelagica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 49 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
[14] J.C. Rowell, *The Snakes of Ontario: Natural History, Distribution, and Status.* Published in Canada by Art Bookbindery, 2012, p151.

known to be present in the Sudbury region, the northern limit of its range is along the southernmost areas of the district. The species' most extreme range limits are more than 60km away from the proposed development.

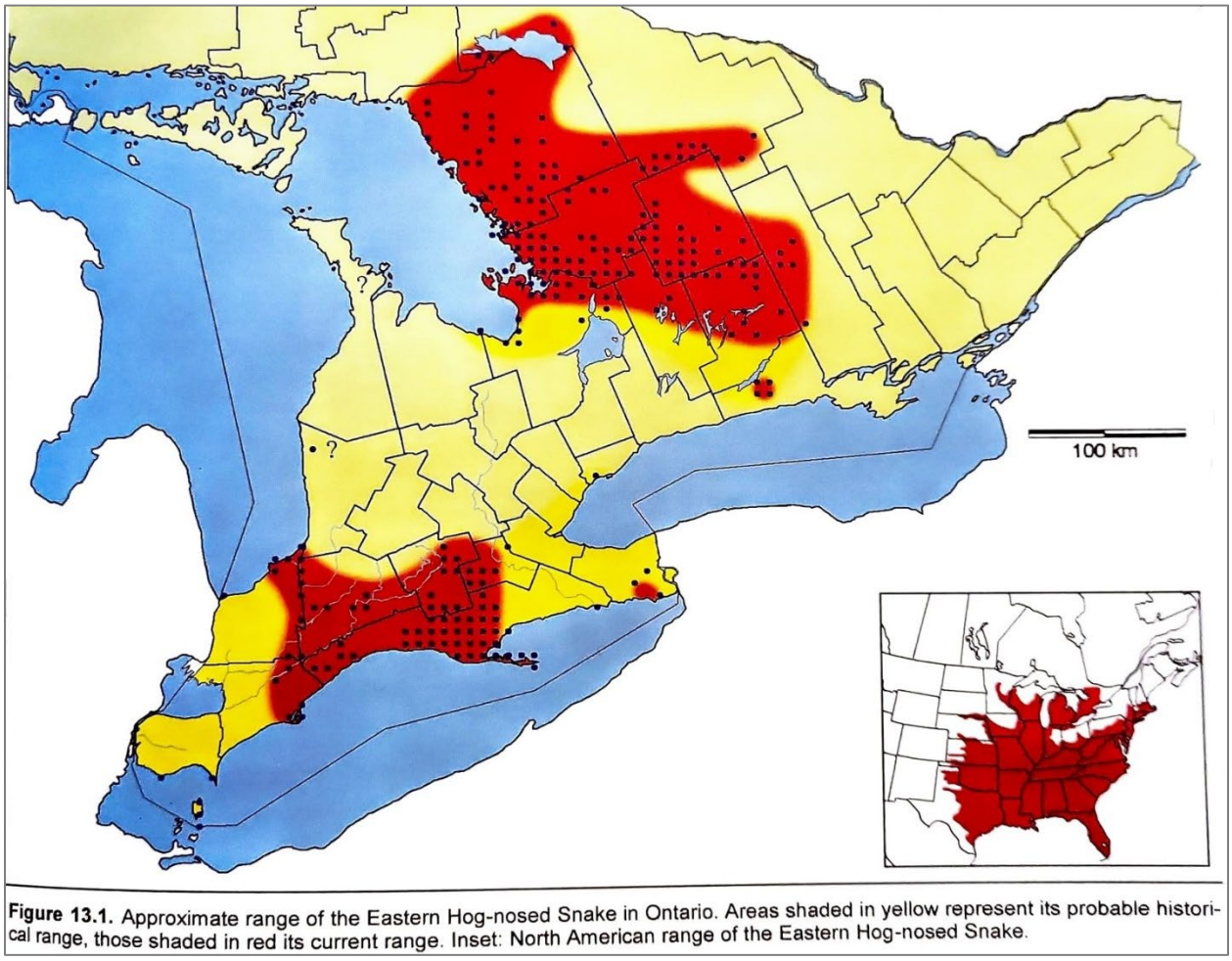

Figure 13.1. Approximate range of the Eastern Hog-nosed Snake in Ontario. Areas shaded in yellow represent its probable historical range, those shaded in red its current range. Inset: North American range of the Eastern Hog-nosed Snake.

Figure 4: Excerpt from book, "The Snakes of Ontario: Natural History, Distribution, and Status"

No Eastern hog-nosed snakes were seen during field investigations despite targeted reptile searches in potential basking areas (rock barren, rarely used for oviposition) close to assumed foraging areas (wetland edge). There are no confirmed observations of the species on the NHIC database nor in the 10km grid square in the Ontario Reptile & Amphibian Atlas.[15] No snakes of any species were observed on the property during field

[15] https://www.ontarioinsects.org/herp/php/SQLname.php?name=all&records=all&char1=&lowYear=1333&highYear=9999&spIndex=0&areaID=17NM04&areaName=undefined&type=spList&sp=na&area=squares&order=taxonomic

investigations. No negative impacts to the species and its habitat are anticipated as a result of the proposed development and no further study required.

3.4 Eastern Whip-poor-will (*Antrostomus vociferus*)

Eastern Whip-poor-wills are found in a variety of open habitats and avoid areas where the forest canopy is extensive and closed. Breeding habitat is considered suitable when it contains features related to the following life processes: territory establishment, nesting, foraging and roosting. Whip-poor-wills typically select rock or sand barrens with scattered trees, savannahs, old burns, and open conifer plantations. These and other sites in a state of early to mid-forest succession are preferred for breeding.

Whip-poor-wills have been documented in a variety of semi-open habitats, usually near wetlands. Their eggs are laid directly on the ground in an area that provides sparse ground cover and offers shade and tree cover as well. Nest sites are usually close to open areas which are necessary for foraging. They are crepuscular insectivores, feeding predominantly on Lepidopterans (moths). Breeding is typically mid-May through mid-July.[16] [17] [18] [19]

Whip-poor-will surveys were conducted in June. Surveys were conducted when the moon was 50% full or greater and visible (above the horizon) and air temperatures were at least 10°C. The nightjar survey station was established at the high point on the largest rock barren habitat ensuring thorough coverage of the potential habitat areas. Despite suitable survey conditions, evidenced by positive observations at other sites in the region on the same survey nights, no whip-poor-wills were heard during any of the surveys. Eastern Whip-poor-wills are not breeding on or within 120 meters of the property, no impacts are expected and no mitigation is required.

[16] Desy, G. 2010. Habitat Description, Whip-poor-will (*Caprimulgus vociferus*): Threatened. Ontario Ministry of Natural Resources. 16 pp. DRAFT.

[17] Ontario Ministry of Natural Resources. 2013. General Habitat Description for the Eastern Whip-poor-will (*Caprimulgus vociferous*).

[18] COSEWIC. 2009. COSEWIC assessment and status report on the Whip-poor-will *Caprimulgus vociferus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

[19] Cink, Calvin L. 2002. Eastern Whip-poor-will (*Antrostomus vociferus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/620

Table 2: EWPW survey dates and conditions

Station #	Station UTM Coordinate	Visit #	Date	Air Temperature (°C)	Precipitation	% Cloud Cover	% Moon Illuminated	Wind Speed	Ecosite (habitat)	Whip-poor-will Detected?
1	17T 506680 5147943	1	June 7	14	None	5	51	1 Light air	G008N	No
2	17T 506799 5147845	1	June 7	14	None	5	51	1 Light air	G198X	No
1	17T 506680 5147943	2	June 14	22	none	10	98	1 Light air	G008N	No
2	17T 506799 5147845	2	June 14	22	none	10	98	1 Light air	G198X	No

3.5 SAR Bats

Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, and the Tricolored Bat have been recently listed as endangered species at risk in Ontario. They are experiencing significant population declines because of a disease called White Nose Syndrome. During the active season, bats feed on insects at night and roost during the day. They roost either individually (males) or in groups (females with pups), usually in warm, elevated spaces. Bats often choose human-created roosts such as attics and abandoned buildings as they offer optimum habitat for summer roosts, usually close to water and open areas for foraging. Natural roosts include large hollow trees and spaces behind loose bark. All four SAR bat species show distinct seasonal behavioural shifts, hibernating reliably in caves and abandoned mines each year from October through April where temperatures remain above freezing and humidity levels are high.[20] [21] Given the habitat present on site, the list of potential SAR bat species was further scoped to include Little Brown Myotis and Northern Myotis.

Little Brown Myotis (*Myotis lucifugus*)

Little brown myotis often use caves, quarries, tunnels, hollow trees or buildings for roosting. Maternity colonies of Little Brown Myotis are most frequently found in warm

[20] Dobbyn, S. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists. 120 pp.
[21] Ontario Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. Toronto: Queen's Printer for Ontario. 151pp.

dark areas, like barns, attics, and old buildings and overwinters in caves and mine adits (horizontal mine shafts) in Ontario. These bats mainly forage over open areas including wetlands and near forest edges where insect densities are greatest. [22]

Northern Myotis (*Myotis septentrionalis*)

According to Table G4 in Appendix G4 of the Significant Wildlife Habitat Technical Guide, Northern myotis roost in hollow trees or under loose bark. Males roost individually while females are found in maternity colonies of up to 60 adults. They overwinter in mines and caves similar to other species which hibernate in Ontario. Unlike little brown myotis, Northern myotis hunt primarily in forested areas, below the canopy.

The Ministry of Natural Resources & Forestry's recent *Species at Risk (SAR) Technical Note* (2015) lists forested ecosites which have the potential to function as or contain bat habitat based on specific criteria. The G016Tt ecosite qualifies as 'candidate SAR bat habitat' according to the technical note. The remaining ecosites do not qualify based on not only the Technical Note guidelines, but also field investigations in leaf-off condition confirmed the trees within the ecosite are relatively young and do not have sufficient DBH, density, nor the characteristics such as openness and cavities required by bats to support a maternity roost area.

Surveys for potential and suitable habitat were conducted in transects 20m apart in early spring using binoculars. A passive ultrasonic recorders was strategically deployed during bat active season in near to the G016Tt habitat and adjacent the wetland and open areas. The recorder was placed to capture habitat where bats would most likely be found on the subject property. The Wildlife Acoustics passive acoustic recorder was deployed for consecutive nights; from May 13th to July 3rd, 2022 inclusive, was set to triggered recording from sunset to sunrise and the internal clock set with the GPS accessory to ensure absolute locational accuracy. The minimum trigger frequency (14kHz) was chosen to include the full echolocation range of all eight (8) bat species found in Ontario. The recordings were analyzed with Wildlife Acoustics Kaleidoscope Pro software and verified by an experienced biologist.[23] One limitation of acoustic monitoring for bats is that pass counts only represent an *index of the magnitude of activity* rather than a population size

[22] Forbes, G. 2012. COSEWIC. Technical Summary and Supporting Information for an Emergency Assessment of the Little Brown Myotis, *Myotis lucifugus*. 25pp.

[23] When the acoustic recorder is triggered by a sound with the appropriate frequency and duration, a recording is saved. Each recording is a series of pulses which represent the bat echolocating. The pulse series is called a bat pass. The bat passes provide valuable information with respect to which species are present, and the relative abundance over time or compared to other sites. It does not, however, give any indication of the actual number of individuals of a particular species.

estimate. The number of passes for each bat species recorded on the subject property (400+ total hours) was as follows:3.00000

Bat Species	SAR?	Total passes	Median passes/nt	Most passes in a single night
Little Brown	Yes	28	0	5
Silver-haired	No (SWH)	268	8	38
Hoary	No (SWH)	190	1.5	65
Big Brown	No (SWH)	464	6	56

Individual day roosts for bats are impossible to rule out completely, but the age and composition of the forested ecosites don't align with the old-growth, upland, open-canopy forest habitats preferred by the forest-roosting bats. SAR bat activity occurred over a very limited number of nights. Bats hibernate from October to April of any given year so to avoid impacts to bats, any site preparation including tree clearing should occur outside the bat active season. In conclusion, if tree removal takes place from October 1 to March 31 of any given year, no impacts to bats or their critical habitat are expected as a result of the proposed development.

4.0 Significant Wetlands

There are no provincially-evaluated or significant wetlands (PSW) found on or adjacent the property. No further investigation necessary.

5.0 Significant Wildlife Habitat

No significant wildlife habitat was identified by CGS or in the desktop review during the agency pre-consultation.

Significant wildlife habitat was considered throughout field investigations, including seasonal concentration areas, rare vegetation communities and specialized habitat for wildlife, habitat of species of conservation concern and animal movement corridors. The Significant Wildlife Habitat Technical Guide (SWHTG) (MNR 2000)[24], the Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E (SWHECS) (MNRF 2015)[25] and the process outlined in the Ministry of Natural Resources Natural Heritage Reference Manual (2010) (NHRM)[26] were used to guide field investigations related to significant wildlife habitat.

[24] OMNR. 2000. Significant wildlife habitat technical guide. 151p.
[25] OMNR. 2015. Significant wildlife habitat Criteria Schedules for Ecoregion. 46p.
[26] Ontario Ministry of Natural Resources. March 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second edition. Toronto: Queen's Printer for Ontario. 248pp.

A number of potentially significant habitats were identified following the classification of the ecosites and cross-referencing the list of known species ranges that overlap the study area. According to the SWH Ecoregion 5E Criterion Schedule, there are several different types of significant wildlife habitat that were considered; only those that were present or had the potential to be present are described further.

5.1 Seasonal Concentration Areas

Seasonal concentration areas are defined by the SWHTG as relatively small areas where species of wildlife are concentrated at certain times of the year. Bat maternity colonies and turtle wintering areas were considered based on the presence of suitable ecosites and associated habitat.

5.1.1 Bat Maternity Colonies: G016

The absence of bat activity on several consecutive nights and the relatively low number of overall passes give confidence in concluding the absence of species at risk maternity colonies on or near the property. For context, similar monitoring near a known Little Brown maternity colony resulted in 334 bat passes over a 2-hour period. Based on the limited and inconsistent number of passes over a consecutive timeframe, combined with the results of the leaf-off cavity tree search, it is highly unlikely that bat maternity roosts exist on the subject property.

5.1.2 Turtle Wintering Areas: G142, G148

The G142 and G148 ecosites have some potential to provide hibernation habitat for Blanding's turtles, snapping turtles, and midland painted turtles. Early spring field investigations verified the absence of any turtles using the wetlands. Despite no turtle observations, the substrates and water depths of the beaver ponds are typical of winter turtle habitat. The proposed minimum 30 meter setback on the wetland area will serve to maintain the potential hibernacula habitat for turtles.

5.2 Specialized Habitat for Wildlife

Specialized Habitat for Wildlife including nesting habitat for woodland raptors and turtles as well as amphibian breeding habitat was considered and discussed below.

5.2.1 Specialized Habitat for Wildlife - Woodland Raptor Nesting Habitat

Stick nest surveys were conducted in early spring 2022 in leaf-off condition and the absence of stick nests were confirmed during field investigations. No further study required.

5.2.2 Specialized Habitat for Wildlife - Amphibian Breeding (Wetlands): G142, G148N

The presence of wetland breeding ponds greater than 500m^2 in size with (i) documented use by a breeding population of at least one salamander species or (ii) 3 or more of the listed frog/toad species (American Toad, Gray Treefrog, Western Chorus Frog, Northern Leopard Frog, Pickerel Frog, Green Frog, Mink Frog, Bullfrog) with at least 20 individuals

(adults or eggs masses) or (iii) 3 or more of the listed frog/toad species with Call Level Codes of 3 is considered significant. These areas can be permanent or seasonal in nature, however, wetted areas where fish are absent are most likely to be significant since predators of amphibian eggs and larvae are absent.

It is recommended that site preparation, clearing, and grubbing should occur outside of the amphibian breeding season, which is generally defined from April through June of any given year. Where a setback of 30m from the wetland ecosites is maintained as naturally vegetated, no negative impacts to this habitat feature are anticipated. No further study required.

5.3 Habitat for Species of Conservation Concern

Habitat for species of conservation concern includes four possible sub-categories, one of which may be present on the property: special concern species.

5.3.2 Special Concern Species

Special concern species were specifically considered during habitat (ELC) investigations as well as through targeted investigations. Special concern species for consideration included Canada Warbler, Common Nighthawk, Evening Grosbeak, Monarch, Olive-sided Flycatcher, and Snapping turtle.

Canada Warbler (*Cardellina canadensis*)

Canada Warblers are most often found in cool, wet, low-lying areas; including swamps, sphagnum bogs and moist forest edges and openings. They are often associated with sites that have a dense understory near open water, vegetation associations including alder and willow. Female Canada Warblers build a loosely constructed cup-shaped nest on or near the ground in early May. The nest is well-concealed, often in thickets or areas with dense ferns. These are typically wet, mossy areas within forest among ferns, stumps, and fallen logs. Nests have been documented in a variety of micro-habitats including within a recessed hole of upturned tree root mass, rotting tree stump or sphagnum moss hummock. They're less often reported within clump of grass, at base of tree stump, tucked under overhanging bank, beside fallen log, in rock cavity, at base of sedge tussock, under leaf on forest floor, at base of moss-covered logs/rocks, or in brush pile. Eggs are laid at the end of May, fledglings leave the nest and are ready to migrate by the end of July, early August. Migration peaks at the end of August, beginning

of September.[27] [28] [29] Several hours of recordings from the bird song recording devices were reviewed. This device was located in suitable edge habitats the recorder did not pick up Canada Warbler calls.

Recommended measures to minimize or avoid impacts include timing vegetation clearing and construction activities likely to affect habitat outside of the breeding season; May 1 through August 31. This condition applies to all breeding birds; it is recommended site clearing and preparation (e.g. grading, excavation, blasting) occur outside of the breeding season. This will reduce or eliminate the likelihood of direct impacts to breeding birds including Canada Warbler.

Common Nighthawk (*Chordeiles minor)*

Common nighthawks are a medium-sized insectivore that traditionally use open habitats such as rock barrens, forest clearings, gravel beaches and areas recently impacted by forest fire. They nest on open ground in these areas and are also known to use anthropogenic sites, especially flat gravel roofs in urban areas. No nest materials are used; ground cover at the nest sites includes gravel, sand, bare rock, leaves and lichen. Similar to Whip-poor-wills, Common Nighthawks are crepuscular (most active at dusk and dawn) insectivores. They commonly forage over open areas, often resting on gravel roads and airport runways or other similar features.[30]

Surveys were conducted in conjunction with Whip-poor-will surveys as both species are expected to use similar habitats. Surveys were conducted during suitable lunar and weather conditions. No nightjars were heard on any of the survey nights. Common nighthawks are not using the property or the adjacent 120 meters for breeding; no mitigation is recommended.

Monarch (*Danaus plexippus*)

In Ontario, monarch butterflies have two habitat requirements. Firstly, adults lay their eggs on common milkweed (*Asclepias syriaca*) and the resultant caterpillar eats milkweed leaves exclusively. Common milkweed is most often found in disturbed sites growing in a variety of soils. Adult butterflies also require nectar from wildflowers which

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[27] COSEWIC. 2008. COSEWIC assessment and status report on the Canada Warbler *Wilsonia Canadensis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 35 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

[28] Reitsma, Len, Marissa Goodnow, Michael T. Hallworth and Courtney J. Conway. 2010. Canada Warbler (*Cardellina canadensis*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/421

[29] http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_CND_WRBLR_EN.html

[30] Brigham, R. M., Janet Ng, R. G. Poulin and S. D. Grindal. 2011. Common Nighthawk (*Chordeiles minor*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/213

are found in a variety of habitats and soil types. Wildflowers are typically found on open sites; such as grasslands, roadsides, agricultural areas and residential gardens.

No areas of milkweed were identified on the property and no adult Monarchs were observed feeding on wildflowers in June and July. No mitigation is recommended as there are no impacts expected to Monarchs as a result of the development.

Olive-sided Flycatcher (*Contopus cooperi*)

In the Ontario portion of its range, the Olive-sided Flycatcher breeds in the boreal forest, specifically riparian zones, bogs, cutovers and areas of recent fire. Olive-sided Flycatchers are a late migrant, arriving in Ontario from mid-May through mid-June. This late migration often results in migrating individuals incorrectly being identified as breeders. Olive-sided flycatchers are aerial insectivores, foraging above or near the top of the adjacent forest canopy. They use a technique known as 'sallying' to capture flying insects including bees, wasps, flying ants and less frequently moths from a perch. Coniferous trees, tall snags and semi-open areas for foraging are important features in a breeding territory. Males and females build open-cup nests usually in a conifer tree; approximately 1 meter away from the trunk of the tree and between 3 and 15 meters off the ground although there is some variability in nest heights. Typical clutch includes 3 – 4 eggs which incubate for approximately two weeks. Hatchlings are fed at the nest for another two weeks.[31]

The ecosites on the property most likely to provide suitable breeding habitat include those providing snags near the wetlands. Olive-sided flycatchers were not heard during any field visits nor were they heard on the recordings. Recorders were installed at the edge of the wetland ecosites providing thorough coverage of potential habitat areas. The wetland ecosites will have a minimum 30 meter setback which will protect individuals and potential breeding habitat for Olive-sided Flycatchers. No impacts are expected, no additional mitigation is necessary.

Snapping Turtle (*Chelydra serpentina*)

Snapping turtles are found in the shallow waters of lakes, rivers and ponds. They occasionally move over land usually in search of suitable nest sites.

Basking surveys for turtles were conducted on the subject property. Snapping turtles were not observed during these surveys, as noted in Table 1. Weather conditions were generally warm and sunny. The *Occurrence Survey Protocol for Blanding's Turtle (Emydoidea blandingii) in Ontario* (OMNR, 2013) was followed. The survey locations are

[31] Altman, Bob and Rex Sallabanks. 2012. Olive-sided Flycatcher (*Contopus cooperi*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/502

noted in Figure 4; and represent combined survey locations for all semi-aquatic turtles (Blanding's, snapping, and painted turtles). Mitigation afforded to Blanding's turtles will also serve to benefit individual snapping turtles on the subject property (see section 3.1). No additional mitigation beyond that provided for Blanding's turtles is required for this species.

5.4 Animal Movement Corridors

Animal movement corridors are defined in the SWHTG as elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another. They can include a wide variety of landscape features including riparian zones and shorelines, wetland buffers, stream and river valleys, woodlands and anthropogenic features such as hydro corridors, abandoned roads and railways.

There was little evidence of deer using the area and no significant trail systems or areas of hyper-browse. No obvious movement corridors for large mammals (deer, moose or bear) were noted. The openness of the understory in the forested ecosites and existing trails (recreational trails), lends to unimpeded movement with nearby cover for larger animals without the need for specific corridors. Significant evidence of beaver activity was present on the property including dams, felled trees, and individuals swimming. The 30m setback from the wetland ecosites will protect any furbearer movement corridors.

6.0 Significant Areas of Natural and Scientific Interest (ANSIs)

There are no areas of significant natural and scientific interest on or within 120 meters of the property.

7.0 Fish Habitat

Fish habitat investigations were undertaken in the aquatic habitats on the property. Fish were observed and captured in the open water pond area and in the watercourse. Species captured included creek chub, northern redbelly dace, finescale dace, brook stickleback, and common shiner. Despite extensive fishing efforts in ditches alongside the G198X ecosite, no fish were observed or captured in these wetted areas. Due to the hydrologic connection to confirmed fish habitat downstream, it is recommended that any in-water work in these ditches is completed in the dry "off-line" and isolated from fish-bearing waters.

There are no impacts expected to fish or fish habitat as a result of the proposed development provided the recommended 30m setback is implemented and respected.

8.0 Summary of Natural Heritage Features, Impacts and Mitigation

The following is a summary of the natural heritage features on the site, the potential impacts and recommended mitigation to minimize of eliminate the risk of impacts.

Table 3: Summary of natural heritage features, impacts, and recommendations

Natural Heritage Feature	Species/ Habitat	Recommendations	Negative Impacts Expected?
Habitat of Endangered and Threatened Species	Blanding's turtle	• Minimum 30 meter naturally vegetated setback on wetland ecosites	No
	Little Brown Myotis	• Tree clearing and vegetation removal to take place between October 1 and March 31	No
Significant wetlands	N/A		
Significant Wildlife Habitat	Turtle wintering area	• 30m naturally vegetated setback from G142 and G148 ecosites	No
	Amphibian Breeding Habitat (Wetlands)	Site prep, tree clearing and vegetation removal to take place between October 1 and March 31	No
	Special Concern Species – Migratory Birds	• Timing restrictions for site clearing/ preparation activities (outside of April 1 – September 30)	No
	Special Concern Species – Snapping Turtle	• Mitigation and protection afforded to Blanding's turtle will also benefit SNTU	No
ANSIs	N/A		
Fish Habitat	Wetland ecosites and watercourses	• 30m setback on wetland area • Setbacks will be established through site plan control to maintain function of habitat for warmwater fishes	No

General Mitigation

The following general mitigation is recommended to ensure compliance with the Provincial Policy Statement (2014), the *Endangered Species Act (*2007*),* the *Fisheries Act* (1990), the *Migratory Birds Convention Act (1994)* and the *Fish and Wildlife Conservation Act* (1997). Many of these recommendations have already been suggested in previous sections of the report. They are reiterated here to confirm their applicability to species groups and habitats which are found on the site.

- Minimum 30 meter naturally vegetated buffer and development setback on the G142 and G148N wetland areas to protect wetland values in addition to potential Blanding's turtle, snapping turtle, and fish habitat
- Clear delineation of setbacks on the ground to ensure consistency and avoid encroachment on recommended setback

- Initial site clearing, preparation, and vegetation removal shall not occur from April 1 – September 30 (the active season) of any given year which encompasses migratory birds and bats
- Erosion and sediment control measures during construction

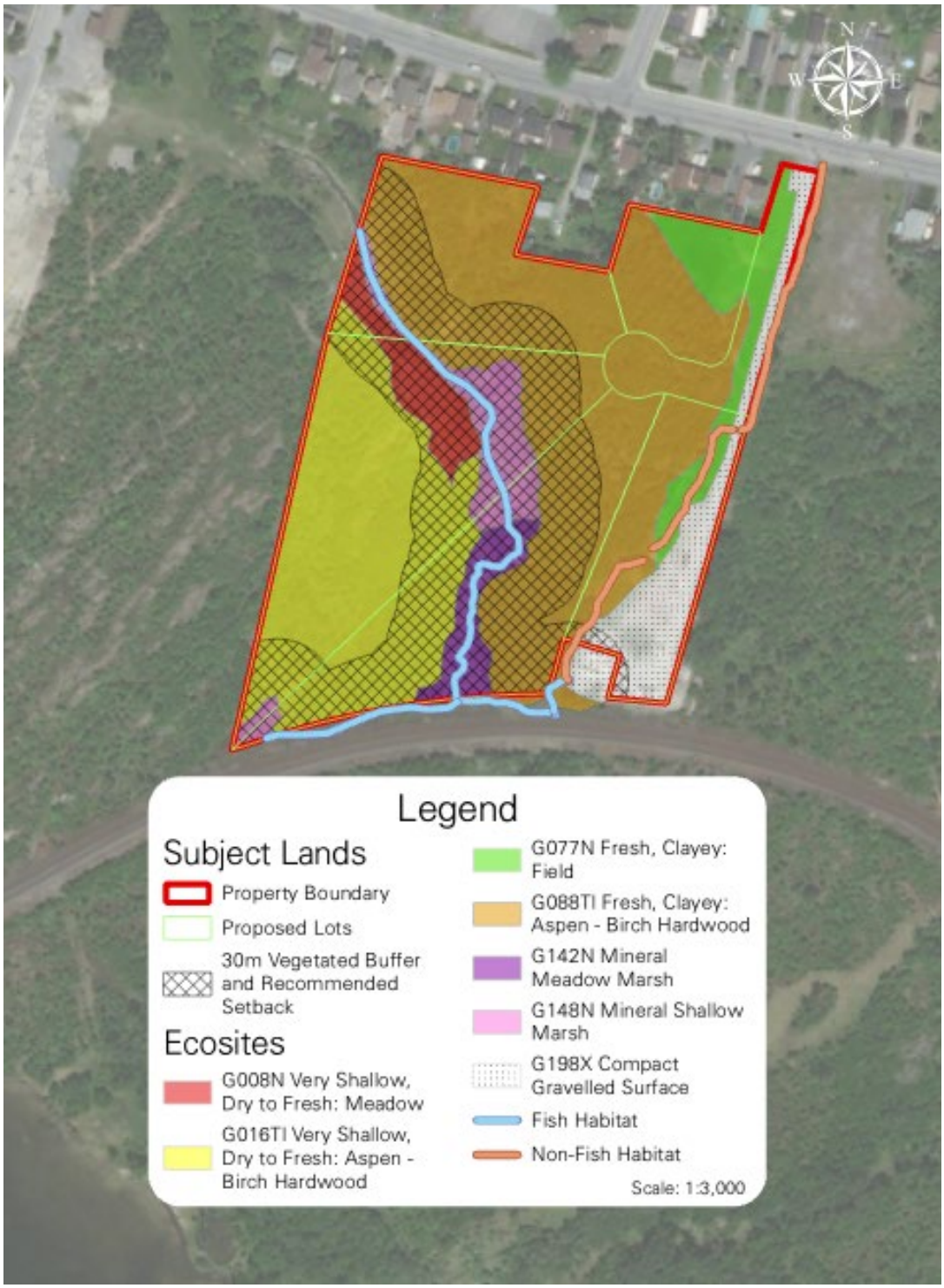

Figure 5: Recommended location of vegetated buffers and development setbacks based on natural heritage features confirmed or potentially present on the subject lands

9.0 Conclusions

It is our opinion that the proposed 5-lot subdivision can proceed while minimizing impacts on the natural heritage features and functions on and adjacent to the site. With the recommended mitigation, the proposed subdivision will be consistent with the 2020 Provincial Policy Statement, specifically Section 2.1 as it relates to natural heritage features and areas.

Respectfully submitted,

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