Environmental Impact Study

Part Lots 15 and 16, Fire Route 89
Township of Harvey, Municipality of Trent Lakes, County of Peterborough, Ontario

D.M. Wills Project Number 7559

D.M. Wills Associates Limited
Partners in Engineering, Planning and Environmental Services
Peterborough

August 2023

Prepared for:
Rosanne Byles

WILLS

Submissions Summary

Submission No.	Submission Title	Date of Release	Submissions Summary
1	Draft Environmental Impact Study	August 25, 2023	Draft Submission to Client

This report has been formatted considering the requirements of the Accessibility for Ontarians with Disabilities Act.

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Executive Summary

D.M. Wills Associates Limited (Wills) was retained by Rosanne Byles (Client) to undertake an Environmental Impact Study (EIS) to address potential impacts associated with the proposed development (Project) at Part Lots 15 and 16, Fire Route 89 Township of Harvey, Municipality of Trent Lakes, County of Peterborough, Ontario (Subject Property).

Due to the presence of an unevaluated wetland, an unevaluated woodland, and fish habitat on or within 120 m of the Subject Property, an EIS is required under the municipality's Official Plan.

Potential impacts of the Project on existing natural heritage features (or natural environmental features) and associated wildlife, including Species at Risk (SAR), were evaluated based on a review of publicly available resources, agency consultation, as well as on-site field investigations.

Field investigations identified the following features:

- An Unevaluated Wetland
- An Unevaluated Woodland
- Habitat for Special Concern species:
    - Bald Eagle (Special Concern)
    - Blanding's Turtle (Threatened)
    - Eastern Wood-pewee (Special Concern)
    - Northern Map Turtle (Special Concern)
    - Snapping Turtle (Special Concern)
    - Wood Thrush (Special Concern)

In order to move forward with the Project, a number of mitigation measures are necessary, including:

- A breeding bird and bat timing window where vegetation and tree removal must occur outside of **April 1st to September 30th**.
- The erection of erosion and sediment control measures including sediment fencing around the exterior of the area of development.
- The erection of turtle exclusionary fence should occur prior to **May 15th** and remain in place until **June 30th** if construction is planned between **May 15th and September 30th** to ensure turtles cannot nest in the area of the proposed development.

- A Tree Preservation and Planting Plan which will aim to preserve larger diameter trees/snags and mitigate any tree removal through planting within the 30 m wetland buffer.

In summary, Wills does not anticipate any significant negative environmental impacts associated with the Project provided the environmental mitigation measures described in this report are implemented effectively throughout the construction period.

1.0 Introduction

D.M. Wills Associates Limited (Wills) was retained by Rosanne Byles (Client) to undertake an Environmental Impact Study (EIS) to address potential impacts associated with the proposed development (Project) at Part Lots 15 and 16, Fire Route 89 Township of Harvey, Municipality of Trent Lakes, County of Peterborough, Ontario (Subject Property). See **Appendix A** for Statement of Limitation details.

Under the *Official Plan of the Township of Galway-Cavendish and Harvey* (2013), an EIS is required to help guide recommendations for applications for development within, or adjacent to, natural environmental features or areas. The Subject Property is within 120 m of various natural environmental features, which include an unevaluated wetland, unevaluated woodlands, and a waterbody which prompted the need for the EIS.

The EIS must demonstrate that there will be no negative ecological or hydrological impacts to the natural environmental feature's connectivity, and linkages associated with the site and surrounding area. The EIS should identify environmental constraints, develop appropriate setbacks, consult with regulatory agencies and identify the activities required to address project compliance with Provincial and Federal statutes and policies including, but not limited to: the *Planning Act* (R.S.O. 1995), the *Growth Plan for the Greater Golden Horseshoe* (2020), the *Conservation Authorities Act* (R.S.O. 1990), the *Official Plan of the Township of Galway-Cavendish and Harvey* (2013), *the County of Peterborough Official Plan* (1994), the *Endangered Species Act* (R.O. 2007), the *Provincial Policy Statement* (2020), and Section 34 and 35 of the *Fisheries Act* (R.S.C. 1985).

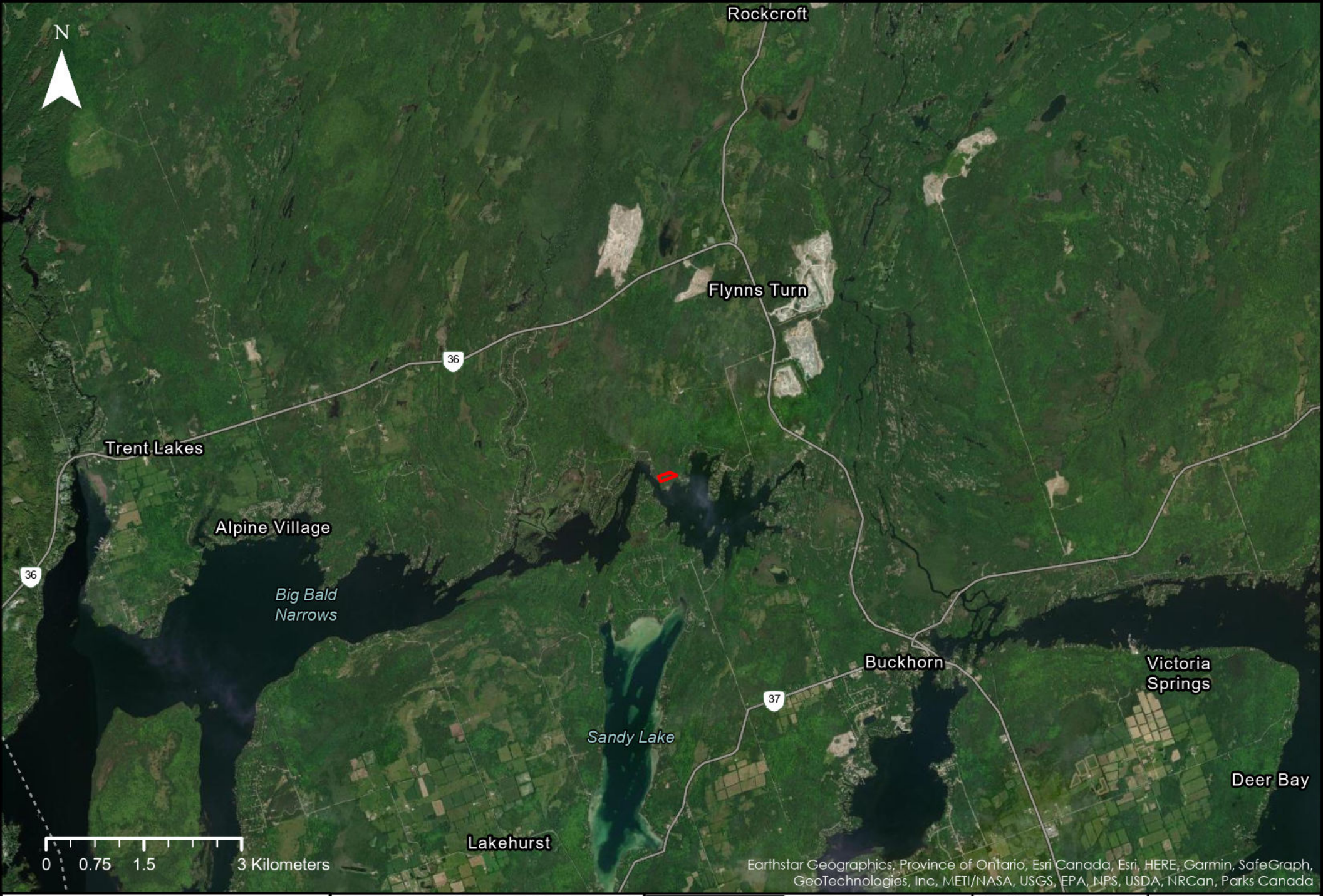
To meet the requirements of the EIS, Wills' biologists undertook a site visit to collect information on existing conditions. This document provides an existing conditions background review, a summary of the observations made during the site visit, describes the potential impacts of the proposed development, and recommends measures to mitigate impacts of the Project.

1.1 Subject Property/Project Details

The Subject Property encompasses approximately 1.95 ha of land with access from Fire Route 89. The proposed development is located in the southeast corner of the Subject Property.

Undeveloped wetlands and forested areas are present throughout the Subject Property. Fire Route 89 borders approximately half of the Subject Property's southeast edge. A residential property is located to the west and forested areas border the remainder. A non-evaluated wetland to the north extends southwest through the Subject Property, eventually connecting to Big Bald Lake.

Wills understands that the Client wishes to develop a single storey dwelling on the Subject Property. See **Figure 1** for the Site Location and **Figure 2** for the Subject Property. See **Appendix B** for the Site Plan.



Legend

Subject Property

Site Location

Environmental Impact Study

Part Lots 15 and 16, Fire Route 89
Township of Harvey, Municipality of Trent Lakes, County of Peterborough, Ontario

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Drawn By	MW	Scale	See Scale Bar
Checked	SF	Date	8/11/23
Project No.	7559	Drawing File No.	Figure 1

Legend

Subject Property

Subject Property

Environmental Impact Study

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2.0 Existing Conditions

2.1 Background Review

2.1.1 Surrounding Land Use

Properties adjacent to the Subject Property are currently undeveloped or being utilized for residential purposes. The woodlands on the Subject Property continue to the north, east and west, and the wetland continues to the southwest and north.

2.1.2 Designated Areas

A review of the MNRF natural heritage/resources data obtained through the Natural Heritage Information Centre (NHIC) database was completed to identify the presence or absence of any Valued Ecosystem Components such as local, provincial, and federally Designated Areas (DAs). DAs include lands covered under the Provincial Policy Statement (2020), as well as, other Natural Environmental Features of local or federal interest including Federal Parks, Environmental Sensitive Landscapes or Areas, such as significant woodlands, locally significant wetlands or otherwise Natural Environmental Features identified for conservation. A copy of the NHIC data map is located in **Appendix C**.

A summary of the results of the database searches is outlined below with reference to DAs.

Areas of Natural and Scientific Interest

No Areas of Natural and Scientific Interest (ANSI) were identified on the Subject Property.

Conservation Reserves

No Conservation Reserves are located on, or within 120 m of the Subject Property.

Provincial Parks

No Provincial Parks are located on, or within 120 m of the Subject Property.

Significant Wildlife Habitat

No SWH records were identified through background review.

Provincially Significant Wetlands

No Provincially Significant Wetlands (PSW) were identified on or within 120 m of the Subject Property based on background review. The nearest PSW (Big Bald Lake East Wetland No. 53) is located approximately 1.74 km east of the Subject Property.

Woodlands

NHIC mapping indicates woodlands as being present throughout the Subject Property extending extensively to the north and briefly to the south and east.

Other Wetlands

An unevaluated wetland makes up approximately 0.93 ha of the Subject Property. This wetland extends into the adjacent lots to the southwest, and north. This wetland likely conveys water from north to southwest, into Big Bald Lake. A separate unevaluated wetland is located across Fire Route 89 approximately 22 m to the southeast of the Subject property.

2.1.3 Soils

The Subject Property falls within Ecoregion 6E (Lake Simcoe, Rideau), a region underlain by carbonate rich Paleozoic bedrock, and dominated by a wide variety of deep glacial deposits (Ecological Stratification Working Group, 1996).

2.1.4 Hydrology/Topography

It is anticipated that surface water on the Subject Property generally flows into the unevaluated wetland running north to southwest in the west portion of the Subject Property and eventually into Big Bald Lake. The majority of the Subject Property has an elevation of 250 masl with a slight slope towards the southwest corner. Fire Route 89 runs from northeast to southwest along the southeast side of the Subject Property and has an elevation of approximately 251 masl. The Subject Property has an elevation change of approximately 5m.

2.1.5 Fish Habitat

No watercourses were identified on or within 120 m of the Subject Property through background review; however, Big Bald Lake is located approximately 43 m to the west, 46 m to the south and 96 m to the east of the subject property.

Fish ON-Line, the MNRF fisheries database, provided information for Big Bald Lake and lists the fish species within the lake to include Black Crappie (*Pomoxis nigromaculatus*), Bluegill (*Lepomis macrochirus*), Brown Bullhead (*Ameiurus nebulosus*), Common Carp (*Cyprinus carpio*), Largemouth Bass (*Micropterus salmoides*), Muskellunge (*Esox masquinongy*), Pumpkinseed (*Lepomis gibbosus*), Rock Bass (*Ambloplites rupestris*), Smallmouth Bass (*Micropterus dolomieu*), Walleye (*Sander vitreus*), White Sucker (*Catostomus commersonii*), and Yellow Perch (*Perca flavescens*).

2.1.6 Significant Wildlife Habitat (SWH)

In accordance with the Provincial Policy Statement (2020) and the MNRF's Significant Wildlife Habitat Technical Guide (2000), SWH is generally defined as areas where wild mammals, birds, reptiles, amphibians, fishes, invertebrates, plants, fungi, algae, bacteria

and/or other wild organisms live, and find adequate amounts of food, water, shelter, and space needed to sustain their populations, and where areas are considered ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System. Specific wildlife habitats of concern may include:

1) Seasonal Concentration Areas of Animals;
2) Rare Vegetation Communities or Specialized Habitats;
3) Habitat of Species of Conservation Concern; and,
4) Animal Movement Corridors.

Stratum II Deer Wintering Area is identified throughout the entirety of the Subject Property through the Ontario GeoHub. No other SWH was identified through background research.

3.0 Field Investigations

The scope of work for the field investigations was outlined by Wills' Biologists. Field investigations took place on July 20, 2023, to evaluate existing ecological conditions within the Subject Property. The field investigations included the following surveys:

- Ecological Land Classification (ELC) was assessed on July 20, 2023.
- Confirm presence/absence of hydrological features (wetlands, watercourses, seeps, springs) and delineate their boundaries on July 20, 2023.
- SWH was screened for on July 20, 2023, in combination with the ELC assessment. Further details are provided in **Section 4.**
- Incidental wildlife and wildlife habitat observations were completed (auditory, visual, tracks, scat, burrows, nests, etc.) with particular attention to any species of conservation concern noted to be present within the area.
- Species at Risk Assessment.

A photographic record to support field investigations is located in **Appendix D**.

3.1.1 Ecological Land Classification

Ecological Land Classification mapping of the Subject Property was completed using the *Ecological Land Classification for Southern Ontario* (Lee, 1998). From this, **Figure 3** and **Table 1** were created.

Three ELC units were identified within the Subject Property:

1. Dry – Fresh Sugar Maple Deciduous Forest (FOD5-1)

   The canopy is dominated by Sugar Maple (*Acer saccharum*) with a few White Oaks (*Quercus alba*), Balsam Poplars (*Populus balsamifera*), and a few Red Oaks

(*Qercus rubra*) interspersed. The subcanopy contains Sugar Maple (*Acer saccharum*), Eastern Hemlock (*Tsuga canadensis*), Ironwood (*Ostrya virginiana*), Basswood (*Tilia americana*) and White Ash (*Fraxinus americana*) while the understorey is dominated by Canada Yew (*Taxus canadensis*), interspersed with Wild Sarsaparilla (*Aralia nudicaulis*), Eastern White Cedar (*Thuja occidentalis*) and saplings of the understorey trees. The ground layer was also dominated by Canada Yew (*Taxus canadensis*), scattered with various grasses (*Poaceae spp.*), various Mosses, Wild Sarsaparilla (*Aralia nudicaulis*), Early Meadow Rue (*Thalictrum dioicum*), Intermediate Wood Fern (*Dryopteris intermedia*), and Sugar Maple (*Acer saccharum*) seedlings.

2. Dry-Fresh Sugar Maple – Hemlock Mixed Forest (FOM3-2)

   The canopy is comprised primarily of Eastern Hemlock (*Tsuga canadensis*), and Eastern White Cedar (*Thuja occidentalis*) with Sugar Maple (*Acer saccharum*), Ironwood (*Ostrya virginiana*), Balsam Fir (*Abies balsamea*), and Red Oaks (*Qercus rubra*) interspersed. The subcanopy contains similar species composition. The understory is dominated by Canada Yew (*Taxus canadensis*), with some, Wild Sarsaparilla (*Aralia nudicaulis*), White Ash (*Fraxinus americana*) saplings, Marginal Wood Fern (*Dryopteris marginalis*) and Lady Fern (*Athyrium filix-femina*) also present. Ground cover consisted of mostly Canada Yew (*Taxus canadensis*) and various grasses (*Poaceae spp.*), with Canada Mayflower (*Maianthemum canadense*), a Trillium species (Trillium sp.) and various Mosses interspersed.

   A cleared area infilled with gravel exists where the eastern portion of this community meets Fire Route 89.

3. White Cedar – Hardwood Organic Mixed Swamp (SWM4-1)

   The canopy is comprised primarily of Eastern White Cedar (*Thuja occidentalis*) and Black Ash (*Fraxinus nigra*), with scattered Balsam Fir (*Abies balsamea*), and one very large White Spruce (Picea glauca). The subcanopy contains similar species composition with White Elm (*Ulmus americana*) also present. The consists of Sensitive Fern (Onoclea sensibilis), Eastern White Cedar (*Thuja occidentalis*) shrubs, Marsh Fern (*Thelypteris palustris*), various sedges (Carex spp.), Wood Nettle (*Laportea canadensis*), and Northern Bugleweed (*Taxus canadensis*). Ground cover was dominated by various mosses including Sphagnum Moss (*Sphagnum sp*.), with Sensitive Fern (Onoclea sensibilis), various sedges (Carex spp.), Bedstraw species (*Galium sp.*), Dwarf Raspberry (*Rubus pubescens*), and Small Bishop's Cap (*Mitella nuda*) interspersed.

Legend

- SubjectProperty
- SWM
- FOM
- FOD

Ecological Land Classification Map

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Drawn By	MW	Scale	See Scale Bar
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Project No.	7559	Drawing File No.	Figure 3

Table 1 – Soil Auger Sample Summary

ELC Community	Soil Auger ID	Total Auger Depth	Effective Texture	Depth of Organics	Moisture Regime	Depth (cm) to Gleys (G) or Mottles (g)	Depth to Water
FOD5-1	Auger #1	10 cm	Silty Clay Loam	<1cm	Dry (0)	N/A	N/A
FOD5-1	Auger #2	11 cm	Loam	<1 cm	Dry (0)	N/A	N/A
FOM3-2	Auger #3	34 cm	Silty very fine Sand	3 cm	Moderately Fresh (1)	N/A	N/A
FOM3-2	Auger #4	39 cm	Sandy Clay Loam	4 cm	Moderately Fresh (1)	N/A	N/A
SWM4-1	Auger #5	>120 cm	Organic	62 cm	Moderately Wet (7)	G: 83 cm	0 cm
SWM4-1	Auger #6	>120 cm	Organic	64 cm	Moderately Wet (7)	G: 84 cm	0 cm
FOM3-2	Auger #7	13 cm	Loam	4 cm	Dry (0)	N/A	N/A

3.1.2 Hydrology/Topography

A wetland feature is present in the west portion of the Subject Property. It is anticipated that this feature collects surface water runoff and drains into Big Bald Lake to the south. This feature was delineated by a Wills biologist. **Figure 4** shows the wetland boundary and the associated 30 m buffer.

3.1.3 Wetland Delineation

Wills' biologists conducted a desktop review of aerial imagery within the Area of Assessment for wetlands using NHIC mapping, prior to the field investigation. Mapping indicated that a wetland was present in the west portion of the Subject Property running from north to southwest, eventually draining into Big Bald Lake.

On July 20, 2023, Wills' biologists conducted a ground confirmation exercise by foot, within the Subject Property, following the Ontario Wetland Evaluation System, 2014 (OWES) standard methods for identifying wetland communities. Wills' biologists traversed the Subject Property, conducting an evaluation of wetland presence/absence in the wetland polygons indicated by NHIC mapping. When a wetland was found, the boundary was delineated using a handheld Garmin GPS, marking a waypoint approximately every 5 m.

The OWES methodology involves identifying vegetation species and determining the relative abundance or "cover" of wetland indicator species versus upland vegetation species. If the vegetation community consists of greater than 50% wetland indicator species, this area is identified as a wetland. This is commonly known as the "50% wetland vegetation rule". If the percent composition of wetland indicator species is equal to that of upland indicator species, that space represents the wetland boundary. Soil augers were taken at various locations to assist in confirming wetland communities/boundaries.

The wetland boundary can be seen in **Figure 3**.

3.1.4 Incidental Wildlife Observations

The following wildlife species were observed during field investigations:

- Black-capped Chickadee (*Poecile atricapillus*)
- Eastern Wood-pewee (*Contopus virens*) *
- Ovenbird (*Seiurus aurocapilla*)
- Red-eyed Vireo (*Vireo olivaceus)*
- White-tailed Deer scat (*Odocoileus virginianus*)
- Winter Wren (*Troglodytes hiemalis*)

*Special Concern Species

3.1.5 Species at Risk Assessment

Information from the following sources was reviewed for all species of conservation concern prior to completing the field investigation to assist in assessing the Subject Property for SAR.

1. Land Information Ontario Natural Heritage Areas database; and,
2. Other SAR species identified through other data sources (Ontario Breeding Bird Atlas, iNaturalist, e-Bird, Ontario Reptile and Amphibian Atlas).

A SAR Screening Assessment was completed comparing known occurrences within the area against specific local habitat features identified during the field investigation; see **Table 2** for details.

Table 2 – Species at Risk Screening Assessment

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Likelihood of Occurrence	Site Area Suitability/Observations
Bald Eagle (*Haliaeetus leucocephalus*)	Special Concern	Not at Risk	Not listed	Bald Eagles nest in a variety of habitats and forest types, almost always near a major lake or river where they do most of their hunting. While fish are their main source of food, Bald Eagles can easily catch prey up to the size of ducks, and frequently feed on dead animals, including White-tailed Deer. They usually nest in large trees such as pine and poplar. During the winter, Bald Eagles sometimes congregate near open water such as the St. Lawrence River, or in places with a high deer population where carcasses might be found (MECP, 2021a).	Medium	Habitat requirements present. Subject Property is entirely forested and adjacent to Big Bald Lake. Though no pines or poplars were observed, large trees suitable for nesting are scattered throughout the property. No Bald Eagles or large stick nests were observed during field investigations. Mitigation measures are outlined in **Section 6.4**.
Barn Swallow (*Hirundo rustica*)	Special Concern	Special Concern	Threatened	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. The species is attracted to open structures that include ledges where they can build their nests, which are often re-used from year to year. They prefer unpainted, rough-cut wood, since the mud does not adhere as well to smooth surfaces (MECP, 2023b).	Negligible	Habitat requirements not present. No artificial structures suitable for nesting were observed on the Subject Property. No Barn Swallows were observed or recorded during field investigations.
Blanding's Turtle (*Emydoidea blandingii*)	Threatened	Endangered	Threatened	Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. It is not unusual, though, to find them hundreds of metres from the nearest water body, especially while they are searching for a mate or traveling to a nesting site. Blanding's Turtles hibernate in the mud at the bottom of permanent water bodies from late October until the end of April (MECP, 2021b). Blanding's Turtle nests are created in open habitats with low vegetation cover and high sun exposure such as in forest clearings, meadows, shorelines, beaches, rock outcrops, cornfields, gravel roads, road shoulders, ploughed fields, gardens, powerline rights-of-ways, yards and abandoned railroad beds (MECP, 2021b).	Medium	Habitat requirements are moderate. The shoreline of Big Bald Lake and associated wetlands adjacent to the Subject Property may provide suitable habitat for Blanding's Turtles. On the Subject Property, standing water is limited to the SWM4-1 which lacks sufficient sun for basking due to canopy cover. The small gravel infilled area within FOM3-2 provides suitable nesting habitat. No Blanding's Turtles or their nests were observed during field investigations. Mitigation measures are outlined in **Section 6.4**.
Common Five-lined Skink (*Plestiodon fasciatus*) - Southern Shield Population	Special Concern	Special Concern	Special Concern	Common Five-lined Skink enjoys basking on sunny rocks and logs to maintain a preferred body temperature between 28 and 36°C. During the winter, they hibernate in crevices among rocks or buried in the soil. In North America, Common Five-lined Skink occurs throughout hardwood forests from the Atlantic seaboard to Texas and Minnesota, and from southern Ontario to the Gulf of Mexico. In Canada, the species is limited to two distinct areas:	Low	Habitat requirements low. Sunny open areas were limited on the Subject Property since the majority was covered by dense forest canopy. No Common Five-lined Skinks were observed during field investigations.

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Likelihood of Occurrence	Site Area Suitability/Observations
				one is along the southern margin of the Canadian Shield, and the other is in the Carolinian Zone in southwestern Ontario. (MECP, 2023c).		
Eastern Meadowlark (*Sturnella magna*)	Threatened	Threatened	Threatened	Eastern Meadowlarks breed primarily in moderately tall grasslands, such as pastures and hayfields, but are also found in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Small trees, shrubs or fence posts are used as elevated song perches (MECP, 2021d).	Negligible	Habitat requirements are not present on the Subject Property. The entire Subject Property is covered by forested communities. No Eastern Meadowlarks were observed during field investigations.
Eastern Ribbonsnake (*Thamnophis sauritus*)	Special Concern	Special Concern	Special Concern	The Eastern Ribbonsnake is usually found close to water, especially in marshes, where it hunts for frogs and small fish. A good swimmer, it will dive in shallow water, especially if it is fleeing from a potential predator. At the onset of cold weather, these snakes congregate in underground burrows or rock crevices to hibernate together (MECP, 2022e).	Low	Habitat requirements low. Marshy areas are restricted to small pockets of the SWM4-1 community towards Big Bald Lake. No Eastern Ribbonsnakes were observed during field investigations.
Eastern Whip-poor-will (*Caprimulgus vociferus*)	Threatened	Threatened	Threatened	The Eastern Whip-poor-will is usually found in areas with a mix of open and forested areas, such as savannahs, open woodlands, or openings in more mature, deciduous, coniferous, and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting. It lays its eggs directly on the forest floor, where its colouring means it will easily remain undetected by visual predators (MECP, 2021f).	Low	Habitat requirements are present throughout various portions of the forested areas on the Subject Property. No Eastern Whip-poor-will were observed during field investigations. The forested areas throughout the Subject Property have variable understories, with areas of dense and low-density vegetation within the understory and ground cover layers. These conditions are not as favourable for Eastern Whip-poor-will nesting as forested communities with little to no vegetation throughout the understory or ground cover layers. Mitigation measures are outlined in **Section 6.4**.
Eastern Wood-pewee (*Contopus virens*)	Special Concern	Special Concern	Special Concern	The eastern wood-pewee lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation (MECP, 2021g).	High	Habitat requirements present. Edge habitat located on the periphery of the FOD5-1 and FOM3-2 ecosites where these communities encounter Fire Route 89, Northern Ave, adjacent residential properties, and the cleared/gravel infilled area. Eastern Wood-pewees were heard

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Likelihood of Occurrence	Site Area Suitability/Observations
						within the FOD5-1 and FOM3-2 ecosites during field investigations. Mitigation measures outlined in **Section 6.4**.
Evening Grosbeak (*Coccothraustes vespertinus*)	Special Concern	Special Concern	Special Concern	During the breeding season, the Evening Grosbeak is generally found in open, mature mixed-wood forests dominated by fir species, White Spruce and/or Trembling Aspen. Its abundance is strongly linked to the cycle of its primary prey, the Spruce Budworm. Outside the breeding season, the species depends mostly on seed crops from tree species in the boreal forest such as firs and spruces. It is also attracted to ornamental trees that have seeds or fruit, and may visit bird feeders (MECP, 2021h)	Low	Habitat requirements low. Though most of the property is covered by mixed-wood forest, White Spruce and Trembling Aspen are scarce. No Evening Grosbeak were observed during field investigations.
Golden-winged Warbler (*Vermivora chrysoptera*)	Special Concern	Threatened	Threatened	Golden-winged Warblers prefer to nest in areas with young shrubs surrounded by mature forest – locations that have recently been disturbed, such as field edges, hydro or utility right-of-ways, or logged areas (MECP, 2021i).	Low	Habitat requirements low. Subject Property has a small section of cleared forest under hydro wires. No Golden-winged Warblers were observed during field investigations.
Northern Map Turtle (*Graptemys geographica*)	Special Concern	Special Concern	Special Concern	The Northern Map Turtle inhabits rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, the turtles hibernate on the bottom of deep, slow-moving sections of river. They require high-quality water that supports the female's mollusc prey. Their habitat must contain suitable basking sites, such as rocks and deadheads, with an unobstructed view from which a turtle can drop immediately into the water if startled (MECP, 2021j).	Medium	Habitat requirements are moderate. The shoreline of Big Bald Lake likely provides suitable habitat for Northern Map Turtles. Only the gravel infilled area within FOM3-2 provides suitable nesting habitat. No Northern Map Turtles or their nests were observed during field investigations. Mitigation measures outlined in **Section 6.4**.
Snapping Turtle (*Chelydra serpentina*)	Special Concern	Special Concern	Special Concern	Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits (MECP, 2021k).	Medium	Habitat requirements are moderate. The shoreline of Big Bald Lake and associated wetlands may provide suitable habitat for Snapping Turtles. Standing water is limited in the SWM4-1 community but areas closer to Big Bald Lake provided potential overwintering habitat. Only the small gravel infilled area within FOM3-2 provides suitable nesting habitat. No Snapping Turtles or their nests were observed during field investigations.

Species	Provincial ESA Status	COSEWIC Status	Federal SARA Status	Habitat Requirements	Likelihood of Occurrence	Site Area Suitability/Observations
						Mitigation measures outlined in **Section 6.4**.
Wood Thrush (*Hylocichla mustelina*)	Special Concern	Threatened	Threatened	The wood thrush lives in mature deciduous and mixed (conifer-deciduous) forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. These birds prefer large forests but will also use smaller stands of trees. They build their nests in living saplings, trees, or shrubs, usually in sugar maple or American beech (MECP, 2023d).	Medium	Habitat requirements present. Subject Property is part of large mixed-wood and deciduous forests that are dominated by Sugar Maple. Soil is mostly shallow and dry but areas of the FOD5-1 and FOM3-2 ecosites bordering the SWM4-1 ecosite offer a moist forest habitat. Saplings and shrub density vary throughout the ecosites; however, some areas offer communities with a well-developed undergrowth layer. No Wood Thrush were observed during field investigations. Mitigation measures outlined in **Section 6.4**.

4.0 Regulatory Context

4.1 Provincial Policy Statement (2020)

The *Provincial Policy Statement 2020* (PPS) is a consolidated statement of the government's policies on land use planning. The PPS was issued under section 3 of the Planning Act and came into effect May 1, 2020. It replaces the PPS issued April 30, 2014.

The PPS states:

> *Section 2.1.4: Development and site alteration shall not be permitted in:*
>
> *a) significant wetlands in Ecoregions 5E, 6E and 7E*

The Subject Property is in Ecoregion 6E. No PSWs are present on the Subject Property, however, an unevaluated wetland is present throughout the central portion of the Subject Property.

> *Section 2.1.5: Development and site alteration shall not be permitted in:*
>
> *b) significant woodlands in Ecoregions 6E and 7E unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*
>
> *d) significant wildlife habitat;*
>
> *unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

A portion of unevaluated woodlands and Candidate SWH are located within, and adjacent to the area of the proposed development. Further details are provided in Section 5.0 and Section 6.0.

The PPS also states:

> *Section 2.1.8: Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, 2.1.6 and 2.1.7, unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on the ecological functions.*

The Ontario Natural Heritage Reference Manual for the Provincial Policy Statement defines adjacent lands as:

- 120 m from PSW.
- 50 m from – significant woodlands; significant valley lands; significant wildlife habitat; significant portions of habitat for threatened or endangered species, significant ANSIs.

- 30 m from fish habitat.

The Subject Property contains an unevaluated wetland, unevaluated woodlands, and multiple Candidate SWH. Further details are provided in Section 5.0 and Section 6.0.

4.2 Growth Plan for the Greater Golden Horseshoe (2020)

*A Place to Grow: Growth Plan for the Greater Golden Horseshoe' (*2020) was developed to ensure for growth and development within the Golden Horseshoe of Ontario, in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life.

Relative to the Subject Property, the following is applicable:

Section 4.2.2

1. *A Natural Heritage System for the Growth Plan has been mapped by the Province to support a comprehensive, integrated, and long-term approach to planning for the protection of the region's natural heritage and biodiversity. The Natural Heritage System for the Growth Plan excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017.*

4. *Provincial mapping of the Natural Heritage System for the Growth Plan does not apply until it has been implemented in the applicable upper-or single-tier official plan. Until that time, the policies in this Plan that refer to the Natural Heritage System for the Growth Plan will apply outside settlement areas to the natural heritage systems identified in official plans that were approved and in effect as of July 1, 2017.*

The County of Peterborough and the Municipality of Trent Lakes Official Plans have not implemented the Natural Heritage System for the Growth Plan at this time. Therefore, the policies outlined in the Growth Plan do not apply to the Subject Property.

4.3 County of Peterborough Official Plan (1994)

The following policies from the *County of Peterborough Official Plan* (are applicable to the Subject Property:

The County recognizes the important contribution that natural systems, natural heritage features and natural resources make to the social, economic, and environmental health of local municipalities. In this regard, the County has identified the following areas to ensure that the appropriate land use and resource management protection policies are applied to them.

Natural Heritage Features

- *wetlands*
- *flood plains*

- *endangered and threatened species habitat*
- *fish habitat*
- *wildlife habitat*
- *woodlands*
- *valleylands*
- *areas of natural and scientific interest*
- *Oak Ridges Moraine*

The Subject Property contains an unevaluated wetland, unevaluated woodlands, and multiple Candidate SWH. Further details are provided in Section 5.0 and Section 6.0.

4.4 The Official Plan of the Township of Galway-Cavendish and Harvey (2013)

5.1.10.1 Natural Environmental Features

The Municipality recognizes the need to develop policies that will protect and where possible enhance the significant natural environmental features within the Township of Galway-Cavendish and Harvey. As such this Plan recognizes the following natural environmental features and their functions:

a) Flood Plains

b) Steep Slopes

c) Unstable Soils

d) Significant Wetlands and Other Wetlands

e) Fish Habitat

f) Significant Wildlife Habitat

g) Significant Woodlands

h) Significant Valleylands

i) Significant Habitat of Endangered Species and Threatened Species

j) Significant Areas of Natural and Scientific Interest (ANSIs)

5.1.10.2 Objectives

a) Natural features and areas shall be protected for the long term.

b) The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be

maintained, restored, or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features. c) The prohibition of incompatible land uses within significant and sensitive environmental features and areas.

d) To encourage the general public and the private development industry to participate in the co-ordination and implementation of sound management initiatives and practices as they relate to the identified natural environmental features of the Municipality.

e) To identify, in consultation with the Ministry of Natural Resources and the Conservation Authorities, significant woodlands and significant valleylands, and significant wildlife habitat and significant habitat of endangered and threatened species, for the purposes of protection as specified in the Provincial Policy Statement (PPS). This Plan may be amended accordingly to recognize significant woodlands and valleylands and significant wildlife habitat when mapping of these features is available.

The Subject Property contains an unevaluated wetland, unevaluated woodlands, and multiple Candidate SWH. Further details are provided in Section 5.0 and Section 6.0.

4.5 Endangered Species Act, 2007

The *Endangered Species Act, 2007* (ESA) was implemented to protect SAR in Ontario. An independent body, the Committee on the Status of Species at Risk in Ontario (COSSARO), was developed to classify native plants or animals into one of four categories of at risk status:

1. Extirpated: lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
2. Endangered: lives in the wild in Ontario but is facing imminent extinction or extirpation.
3. Threatened**:** lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
4. Special Concern**:** lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

Species at Risk in Ontario (SARO) are provided by MECP, who administer the ESA regulations for SAR in Ontario. The ESA applies to native species that have been proven to be in danger of becoming extinct or extirpated from Ontario. The ESA provides protection of both the species and their habitat, as well as provides a recovery strategy and stewardship program for those SAR.

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 on the

SARO list. In addition, Section 10(1) of the ESA prohibits the damage or destruction of habitat of a species listed as threatened, endangered or extirpated on the SARO list.

A permit from MECP is required under Section 17(2)(c) of the ESA for any proposed work to be completed within the habitat of one, or more, species listed as threatened or endangered.

Eastern Wood-pewee (Special Concern) were observed during the field investigation. No other SAR were observed. Special Concern species are not offered any protection under the ESA. SAR turtles have the potential to nest on the Subject Property. Mitigation measures to avoid impacts are provided in Section 6.0.

4.6 Migratory Birds Convention Act, 1994

The *Migratory Birds Convention Act, 1994* (MBCA) was developed to protect migratory birds, their nests and eggs anywhere they are found in Canada. Relative to the Subject Property, the following is applicable:

Prohibitions

5(1) A person must not engage in any of the following activities unless they have a permit that authorizes them to do so or they are authorized by these Regulations to do so:

- *(a) capture, kill, take, injure or harass a migratory bird or attempt to do so;*
- *(b) destroy, take or disturb and egg; and*
- *(c) damage, destroy, remove or disturb a nest, nest shelter, eider duck shelter or duck box*

Exceptions

(2) However, the following may be damaged, destroyed, removed or disturbed without a permit:

- *(a) a nest shelter, eider duck shelter or duck box that does not contain a live bird or a viable egg;*
- *(b) a nest that was built by a species that is not listed in a Table to Schedule 1 if that nest does not contain live bird or a viable egg; and*
- *(c) a nest that was built by a species that is listed in a Table to Schedule 1 if the following conditions are met:*
  - *(i) the person who damages, destroys, removes or disturbs that nest provided a written notice Minister a number of months beforehand that corresponds to the number of months set out in column 3 of the relevant Table to that Schedule for the species, and*
  - *(ii) the nest has not been used by migratory birds since the notice was received by the Minister.*

As nesting birds were confirmed/are probable on the Subject Property, the requirements to ensure that the Project complies with the MBCA are outlined in Section 6.0

5.0 Determination of Significance

Valued Ecosystem Components (VECs) are broadly defined as any part of the environment that is considered important by the proponent, public, scientists, and government involved in the assessment process. Importance may be determined on the basis of cultural values or scientific concern. For the purposes of the EIS, VECs will be limited to define any part of the biophysical environment that is considered important by the proponent, public, scientists and government involved in the assessment process.

5.1 Significant Wildlife Habitat

To further investigate the potential occurrence of SWH, mapped ELC communities were cross-referenced with a database of significant wildlife habitats to determine potential for any seasonal concentration areas (SCA), rare vegetation communities and specialized habitats for wildlife (SHW), habitat for species of conservation concern (HSCC), and animal movement corridors to be present within the Subject Property. The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E were used to identify potential significant wildlife habitat. See **Table 3** below for details on Candidate SWH that may be applicable to the Subject Property.

Table 3 – Significant Wildlife Habitat Assessment

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH	Confirmed SWH	Additional Notes
Seasonal Concentration Areas of Animals						
Bald Eagle Wintering Area	**Special Concern:** Bald Eagle	Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	Eagle sites have open water, large trees and snags available for roosting.	Yes	N/A	Large trees are scattered throughout the FOD, FOM, and SWM ecosites and the Subject Property is within 1 km of Big Bald Lake.
Bat Maternity Colonies	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Maternity colonies can be found in tree cavities, vegetation and often in buildings, (buildings are not considered to be SWH). Maternity roosts are not found in caves and mines in Ontario. Maternity colonies located in Mature deciduous or mixed forest stands, with >10/ha large diameter (>25 cm diameter at breast height) wildlife trees Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred.	Yes	N/A	Subject Property is entirely forested and consists of FOD, FOM, and SWD communities. The woodland on the Subject Property extends for greater than 10 ha off property and contains trees with diameter at breast heights (DBH) greater than 25 cm.
Reptile Hibernaculum	**Snakes:** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **Special Concern** Milksnake Eastern Ribbonsnake **Lizard:** **Special Concern** (Southern Shield population)**:** Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line, such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures.	No	N/A	**Snakes**: No features allowing access below the frostline were observed in the area of proposed development. **Lizards**: No rock outcrops or significant openings in the canopy were observed in the area of proposed development.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH	Confirmed SWH	Additional Notes
Landbird Migratory Stopover Areas	All migratory songbirds All migrant raptors species	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. If multiple woodlands are located along the shoreline those Woodlands <2 km from Lake Ontario are more significant Sites have a variety of habitats; forest, grassland and wetland complexes. The largest sites are more significant Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5 km of Lake Ontario are Candidate SWH.	No	N/A	Subject Property is not within 5 km of Lake Ontario.
Deer Yarding Areas	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual" Woodlots with high densities of deer due to artificial feeding are not significant.	Yes	N/A	The Subject Property was identified as Stratum II Deer Yarding Areas by the MNRF (Ontario GeoHub).

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH	Confirmed SWH	Additional Notes
Rare Vegetation Communities or Specialized Habitat for Wildlife						
Specialized Habitat for Wildlife						
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Osprey **Special Concern** Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds, and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. Osprey nests are usually at the top of a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. Nests located on man-made objects are not to be included as SWH (e.g., telephone poles and constructed nesting platforms).	Yes	N/A	The Subject Property contains FOD, FOM and SWM ecosites which are within 1 km of Big Bald Lake.
Woodland Raptor Nesting Habitat	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30 ha with >10 ha of interior habitat. Interior habitat determined with a 200 m buffer. • Stick nests are found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small offshore islands. • In disturbed sites, nests may be used again, or a new nest will be near an old nest.	No	N/A	The woodland located on the Subject Property extends for >30 ha off the subject property; however, the 200 m buffer used to identify interior habitat restricts the woodland interior habitat to ~376 m away from the Subject Property.
Amphibian Breeding Habitat (Woodland).	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians	Presence of a wetland, pond or woodland pool (including vernal pools) >500 m2 (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.	No	N/A	The SWM4-1 ecosite contains areas of standing water that were present in July and the wetland is >500 m^2; however, this falls under Wetland Amphibian Breeding Habitat which is offered protection by the 30 m wetland buffer. No pools were observed within the upland wooded ecosites on the Subject Property

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH	Confirmed SWH	Additional Notes
Woodland Area-Sensitive Bird Breeding Habitat	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **Special Concern** Cerulean Warbler Canada Warbler	All ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat.	No	N/A	The woodland located on the subject property extends for >30 ha off the subject property; however, the 200 m buffer used to identify interior habitat restricts the woodland interior habitat to ~376 m away from the Subject Property.
Animal Movement Corridors						
Amphibian Movement Corridors	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	Movement corridors between breeding habitat and summer habitat. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (**Amphibian Breeding Habitat – Wetland)** of this Schedule.	Yes	N/A	Amphibian Breeding Habitat (Wetland) is anticipated to be present in the SWM4-1 therefore the surrounding woodlands are anticipated to provide Amphibian Movement Corridors.
Deer Movement Corridors	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when **Deer Wintering Habitat** is confirmed as SWH from Table 1.1 of this schedule. A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring	No	N/A	The entire Subject Property was identified as a Stratum II Deer Yarding Area by the MNRF (Ontario GeoHub). Therefore, the Deer Movement Corridors would be located off

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Candidate SWH	Confirmed SWH	Additional Notes
			dispersion, corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).			property to the north and west at the edge of the Deer Wintering Habitat.
Habitats of Species of Conservation Concern considered SWH						
Special Concern and Rare Wildlife Species	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites	Yes	Yes	An Eastern Wood-pewee (Special Concern) was observed during field investigations within the FOD5-1 and FOM3-2 ecosites.

*Any SWH occurring in the SWM4-1 ecosite is offered protection by the 30 m buffer implemented around the wetland and therefore has been omitted from the SWH table.

6.0 Impact Assessment and Mitigation

Any future site development works including building erection, grading, and pavement development have the potential to incur adverse impacts on the surrounding environment including Natural Environmental Features, sensitive species (e.g., SAR), and/or Significant Wildlife Habitat (often described under the umbrella of VECs), particularly concerning works in undeveloped natural landscapes. Locally specific mitigation measures are implemented to prevent or mitigate impacts to the VECs identified.

To address any potential impacts to the existing natural features or any potential wildlife species of conservation concern which may reside in the area, as shown in **Table 2,** the following mitigation measures should be implemented.

6.1 General Recommendations

The following general recommendations should be applied to any future development:

- All necessary precautions must be taken to prevent the accumulation of litter and construction debris within any natural areas, including the 30 m wetland buffer, outside of the construction limits. Daily inspections and clean-up must take place.
- Upon project completion, all construction materials must be removed off-site.

6.2 Natural Environmental Features

6.2.1 Woodlands

The woodland on the Subject Property is part of a larger woodland complex which extends for approximately 762.78 ha. This woodland supports 85.63 ha of interior habitat (100 m from forest edge), the border of which just slightly overlaps the north Subject Property boundary. The proposed development in the southeast corner of the Subject Property would reduce approximately 0.17 ha of the interior habitat. Therefore, relative to the woodland as a whole, the development would have minimal impact on the woodland and its interior habitat.

The Subject Property is located at the south end of the woodland while linkages to other woodlands occur to the west, north and east. Therefore, due to the location and size of the proposed development, the development would have no impact on the linkages to other woodlands or natural heritage features. The proposed area of development is located approximately 100 m from the interface between the woodland and fish habitat (Big Bald Lake), and there are other areas where these Natural Environmental Features are linked. Therefore, the development would have minimal to no impact on the linkage between this woodland and fish Habitat.

6.2.1.1 Impacts to Form and Function

The presence of Fire Route 89, Northern Avenue, and the surrounding residential land development, have created an existing long-term impact to the woodland feature. The location of the proposed development is between these features with a portion of woodlands that is being left undeveloped to the north, outside of the Subject Property and to the west through the wetland on the Subject Property. This undeveloped portion maintains a linkage between woodland areas to the west, north and east allowing for movement of wildlife through this corridor.

While the developable area within the proposed severance will not reduce the woodland complex significantly, restrictions on the developable area should still be implemented in order to minimize impacts to the feature. A key function of a woodland is to provide prevent soil erosion and reduce flood erosion. However, the location of the proposed development is not within the floodplain of Big Bald Lake according to the municipality of Trent Lakes floodplain mapping, or within the 30 m wetland buffer. In order to minimize soil erosion within the woodland, the amount of impervious surfaces should also be restricted.

Despite the fish habitat and wetland being a sufficient distance away from the proposed development, in order to have negligible impacts, it is important that natural hydrologic processes are maintained.

As such, the following mitigation measures should be implemented:

- A Tree Preservation and Planting Plan (TPPP) should be developed to preserve larger healthy trees, where possible, within the developed areas. The TPPP should include a replanting plan to offset any losses as a result of clearing of the woodland feature. Replanting efforts should focus on increasing the woodland feature on the Subject Property. The TPPP should be approved by the municipality and should include native tree species found within the woodlands on site.
- Vegetation removal within the woodlands should be limited to the area of construction, and the disturbed area (buildings/structures) should not exceed 25% of the total developable area;
- Any future development should limit the amount of impermeable surfaces to 10% of the total developable area; and,
- It is recommended that construction activities aim to retain as much native vegetative cover as possible. Following any development, native tree species that are representative of the overall woodland community should be planted in as much of the disturbed area as possible.
- Snags greater than 25 cm DBH should be preserved to protect the Candidate Bat Maternity Colony SWH.
- Trees that are greater than 40 cm DBH should be preserved to protect raptor nesting and wintering habitat, and Deer Wintering Habitat.

- To compensate for the forested area within the 30 m wetland buffer that has been cleared, it is recommended that 2 rows of 10 Eastern White Cedars be planted 2 m apart within the cleared buffer area. The rows of Eastern White Cedars should be 2 m apart.

6.2.2 Significant Wildlife Habitat

The Candidate SWH within the Subject Property has the potential to be impacted by the proposed development. The following mitigation measures should be implemented to ensure that impacts to the Candidate SWH are avoided.

6.2.2.1 Bald Eagle Wintering Areas

The potential for Raptor Wintering Area SWH exists within the forested ecosites on the Subject Property. The likelihood of occurrence is low because no known Bald Eagle winter roosting or perching sites occur on the Subject Property, and development on adjacent land/human activity in the area may have resulted in the abandonment of the area by any previous resident Bald Eagles.

- The TPPP (as described in Section 6.2.1) should be created and implemented, to protect large trees and snags that provide suitable perching and roosting habitat for Bald Eagles. The preservation of these large trees is important to minimize impacts to Bald Eagle Wintering Areas.

6.2.2.2 Bat Maternity Colonies

The potential for Bat Maternal Colonies SWH exists within the FOD, FOM, and SWM ecosites on the Subject Property.

To minimize the risk of impact to bat species during important life stages, removal of trees and woody vegetation should be kept to a minimum and should only take place between **October 1** and **March 31**.

- Vegetation removal within the woodlands should be limited to the area of construction, and the disturbed area (buildings/structures) should not exceed 20% of the total developable area;
- The TPPP (as described in Section 6.2.1) should be created and implemented, to protect large trees with cavities (wildlife trees, >25 cm DBH) that provide suitable habitat for bats to rear their pups. The preservation of these large trees is important to minimize impacts to maternal bat colonies.
- Snags that are greater than 25 cm DBH should preserved.

6.2.2.3 Deer Yarding Areas

Stratum II Deer Wintering Area was identified in the woodlands on the Subject Property using Ontario GeoHub Wildlife Values Area mapping (2020). According to Schedule B1 mapping of the Township of Gallway-Cavendish & Harvey Official Plan (2013), and Wills

field investigation findings, the Subject Property is not anticipated to be considered a high quality Deer Wintering Area. Mast producing trees were extremely limited throughout the Subject Property, particularly in the area of the proposed development. Proposed development will not isolate areas of Stratum II habitat; however, to ensure that no permanent impacts occur from future development occur, the following mitigation measures should be implemented:

- At least 80% of the total developable area will be maintained in a natural state.
- Large coniferous trees (>40 cm DBH) should be preserved where possible in order to provide adequate canopy for deer throughout the winter months.
- The TPPP (as described in Section 6.2.1) should be created and implemented, including the planting of cover species (Eastern White Cedar) to expand the wintering habitat area away from the development.

6.2.2.4 Bald Eagle and Osprey Nesting, Foraging and Perching Habitat

The potential for Bald Eagle and Osprey Nesting, Foraging and Perching Habitat SWH exists within the FOD, FOM, and SWM ecosites on the Subject Property. No stick nests were observed on the Subject Property; however, suitable trees exist throughout the forested ecosites.

- The TPPP (as described in Section 6.2.1) should be created and implemented to protect large trees (>40 cm DBH) and snags (>25 cm DBH) that provide suitable nesting and perching habitat for Bald Eagles. The preservation of these large trees is important to minimize impacts to Bald Eagle and Osprey Nesting, Foraging and Perching Habitat.

6.2.2.5 Amphibian Movement Corridors

The potential for Amphibian Movement Corridor SWH exists within the FOM3-2 ecosite on the Subject Property as it borders the SWM4-1 which is anticipated to provide Amphibian Breeding Habitat (Wetland).

- The 30 m buffer around the SWM4-1 community will protect potential Amphibian Movement Corridors between the SWM4-1 community and FOM3-2 ecosites.
- The existing woodland will continue around the proposed development. This will allow the continued movement of amphibians throughout the woodland, without fragmenting this corridor. Therefore, the proposed development will have no impact on the movement of amphibians throughout the woodland.

6.2.2.6 Special Concern and Rare Wildlife Species – Eastern Wood-pewee

The Eastern Wood-pewee lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation, as is found along the Fire Route 89 corridor adjacent to the Subject Property and the hydro line corridor crossing the southwest

corner of the Subject Property. It should be noted that the wooded communities throughout the Subject Property, particularly in the area of the proposed development, have extreme variation in the understory layer. In some areas, a dense understory layer exists, and in others, almost no understory exists.

The Eastern Wood-pewee feeds on aerial insects and is thought to be impacted due to an overall decline in aerial insect abundance. Loss of habitat does not appear to be a significant cause of population decline of the Eastern Wood-pewee in Ontario (COSSARO, 2013).

Based on COSSARO's assessment on the status of Eastern Wood-pewee in 2013, future development within the forested area with frontage onto Fire Route 89 will not cause adverse effects to local populations of Eastern Wood-pewee. An abundance of aerial insects were observed within the Subject Property, further suggesting that local Eastern Wood-pewee populations will not be impacted by future development. Furthermore, some of the impacts to the forest edge habitat from the proposed development will be offset by plantings within the 30 m wetland buffer, as described in the TPPP mentioned in Section 6.2.1.

6.2.3 Wetlands

An unevaluated wetland feature was delineated on the Subject Property. A 30 m buffer has been proposed from this feature (**Figure 4**). Any development or associated impacts should remain outside this buffer area. To ensure no hydrologic impacts to the wetland occur from the proposed development, and to mitigate impacts from a small portion of the 30 m buffer that has already been cleared of trees, the following recommendations should be addressed:

- Where drainage into the wetland cannot be maintained, Low Impact Development features are encouraged (i.e., grassed swales, rain gardens, infiltration trench).
- It is recommended that eaves trough downspouts be directed towards vegetated areas or low impact development features to increase infiltration to groundwater.
- Planting of Eastern White Cedars within the wetland buffer to compensate for the cleared vegetation. See **Section 6.2.1.2** for details on the TPPP.
- The 30 m buffer shall be left to remain in a natural state so native plants can grow, thereby enhancing the buffer over time.
- The wetland buffer should be staked in the field prior to any site development.

The wetland boundary and associated 30 m buffer can be seen in **Figure 4**.

Legend

- SubjectProperty
- Approximate Area of Proposed Development
- Unevaluated Wetland (NHIC)
- Wetland (Wills Delineation)
- 30m Buffer
- Sediment Fence
- Turtle Exclusion Fence

Environmental Constraints Map

Environmental Impact Study

Part Lots 15 and 16, Fire Route 89 Township of Harvey, Municipality of Trent Lakes, Ontario

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Drawn By	MW	Scale	See Scale Bar
Checked	BR	Date	8/24/23
Project No.	7559	Drawing File No.	Figure 4

6.2.4 Big Bald Lake

The Subject Property is adjacent to Big Bald Lake which contains fish habitat. The area of proposed development is greater than 30 m away from the lake's shoreline.

A septic system, including a septic bed, will be constructed in order to manage wastewater on site. Because septic systems can cause increased bacteria and phosphorus inputs into adjacent waterbodies, they should be constructed in a manner to minimize impacts.

As such, the septic system should ensure the following:

- Sufficient depth of overburden exists (at least 2-3 m below infiltration trenches) in order to avoid soil saturation and ensure adequate phosphorus retention;
- Soils contain sufficient acidity to offset phosphorus content;
- Sewage system effluent is kept above the high water table;

6.3 Erosion and Sediment Control

The wetland on the Subject Property is located adjacent to the area of proposed development. It is recommended that an Erosion and Sediment Control Plan (ESCP) be developed and implemented to minimize the risk of sedimentation into the drainage feature and/or wetland during all phases of development.

The ESCP should include:

- Installation of sediment fence around the area of development adjacent to the wetland buffer before construction activities commence to prevent soil deposition into the wetland. See **Figure 4** for specific location of sediment fence.
- Waste material should be contained and stabilized outside of the wetland buffer area. Alternatively, waste materials should be removed off-site.
- Inspection and maintenance of erosion and sediment control measures and structures should take place during the course of construction.
- Erosion and sediment control measures and structures should be repaired, if damage occurs.
- Non-biodegradable erosion and sediment control materials are to be removed after all disturbed ground has been permanently stabilized.
- Site isolation measures for containing stockpiled material should be implemented.
- A response plan should be developed that will be implemented immediately in the event of a sediment release or spill of a deleterious substance.

- An emergency spill response kit, including the appropriate absorbency materials, will be on site at all times. Proper containment, clean up and reporting, in accordance with provincial requirements, is required.

6.4 Species at Risk/Wildlife

The background review and field investigations determined 13 species of conservation concern had recent or historically confirmed presence in the area surrounding the Subject Property. The SAR Screening Assessment (**Table 2**) identified suitable habitat on the Subject Property for six of those species.

SAR or potential SAR habitat was found throughout the property in the woodland and wetland in the west.

6.4.1 Turtles

SAR turtle habitat was identified through background research and field investigations. It is anticipated that the gravel infilled area found within the FOM3-2 community provides suitable nesting habitat for Blanding's Turtles (Threatened), Northern Map Turtles (Special Concern), and Snapping Turtles (Special Concern). As such, it is suggested that turtle exclusionary fencing be installed to isolate the work site prior to the turtle nesting season and be maintained throughout the duration of construction. If work is taking place between **May 15 to September 30**, turtle exclusionary fencing should be installed prior to **May 15** and remain in place until **June 30,** to prevent turtles from nesting in the area. Following project completion, exclusionary fencing must be removed from the site. See **Figure 4** for specific location of sediment fence.

6.4.2 Birds and Bats

Habitat for three SAR bird species was identified as being present within, or adjacent to the area of the proposed development. This includes Bald Eagle (Special Concern), Eastern Wood-pewee (Special Concern), and Wood Thrush (Special Concern). The potential for bats to be present on the Subject Property exists through their use of wildlife trees and snags for maternal roosts. In addition, Birds listed on Schedule 1 of the MBCA construct nests that are utilized year over year either by the same individual, or individuals of another species and are therefore granted more protection than other bird species. In order to ensure compliance with the MBCA and ESA, the following mitigation measures are required:

- A nest sweep for all species listed on Schedule 1 of the MBCA must be conducted in the area of impact prior to vegetation removal. If a nest from a species on Schedule 1 is identified, monitoring for a specified time (typically 1 to 3 years) is required to determine if that nest is currently being utilized.
- Vegetation/tree clearing must take place outside of the breeding bird and bat roosting season of **April 1st to September 30th.**

- If this time period is unavoidable, alternatively, a nest sweep for birds and an assessment of bat roosting activity must be conducted by a qualified biologist, prior to any clearing of vegetation on-site.
- Following a bird nest sweep and a roosting survey, vegetation removal/building demolition must be completed within 72 hours. If it is not completed within this time period, an additional sweep is required.
- If, during a nest sweep or roosting survey, any bats or bird nests are encountered, all construction activities should cease, and a buffer should be placed around the location until **after the chicks have left the nest or until after September 30 for bat habitat**. The size of the buffer will be dependent on the species and should be consulted with the MNRF and/or MECP.

The MECP must be contacted in the case that any SAR species are identified during pre-construction or throughout the construction phases.

7.0 Conclusions

Given the results of background review and on-site investigations, long-term adverse impacts to Natural Environmental Features, associated habitat, and local wildlife populations are not anticipated to be resultant from the proposed development provided that the environmental protection/mitigation measures outlined herein are implemented. Appropriate implementation of the mitigation measures outlined herein will ensure that proposed activities do not conflict with the natural heritage policies set out by the Municipality of Trent Lakes, the Province of Ontario or other relevant environmental legislation.

If you have any further questions, please do not hesitate to contact the undersigned.

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Reviewed by:

Ben Radford, B.Sc.
Project Biologist

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Appendix A

Statement of Limitations

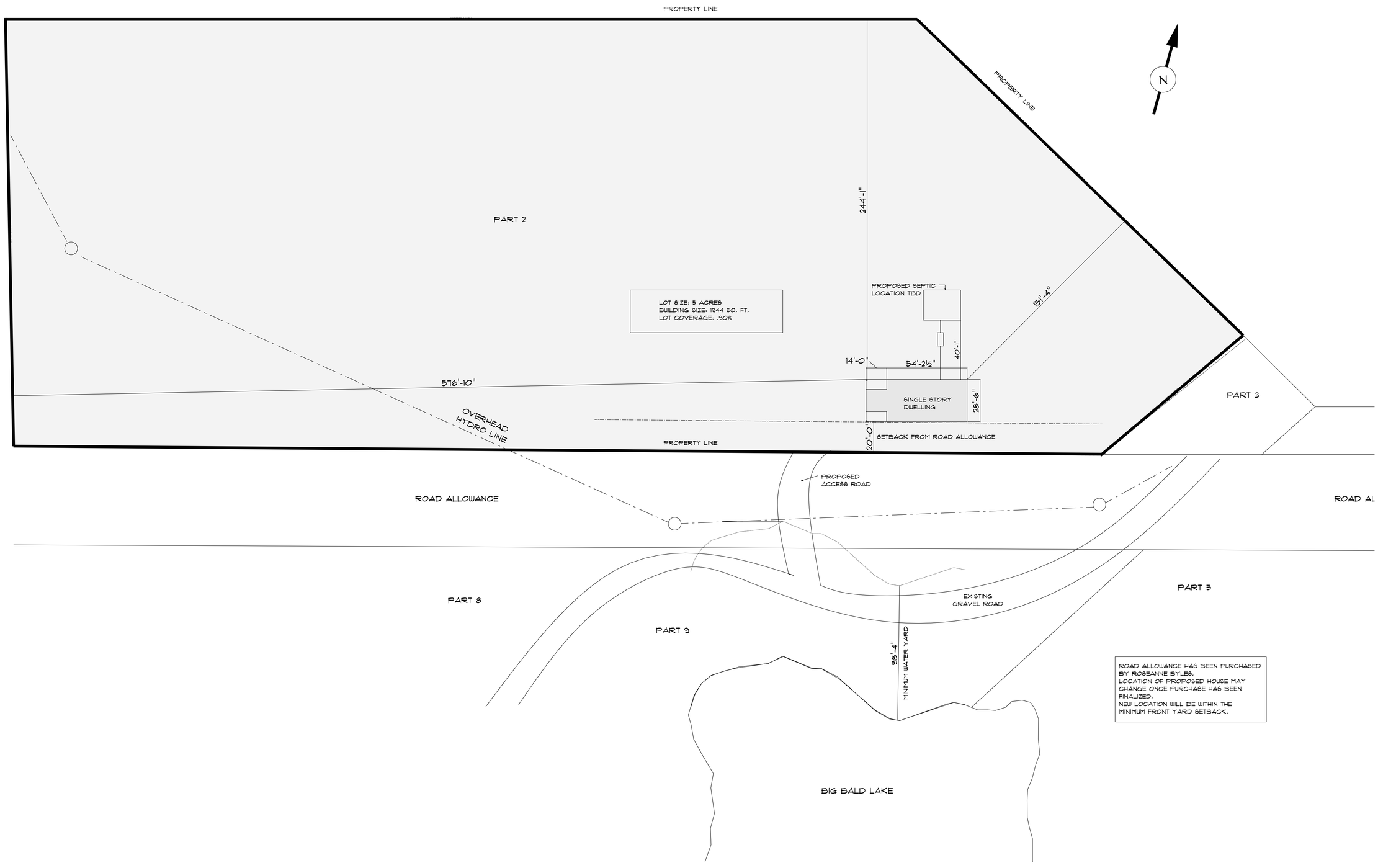
Statement of Limitations

This report is provided solely for the benefit of Rosanne Byles and not for the benefit of any other party. No other party shall be entitled to rely on this report or any information, documents, records, data, interpretations, advice or opinions or other materials given to Rosanne Byles by D.M. Wills Associates Limited (Wills). The report relates solely to the specific project for which Wills has been retained and shall not be used or relied upon by any third party for any variation or extension of this project or any other purpose. Any unpermitted use by any third party shall be at such party's own risk.

The conclusions and recommendations outlined in the Environmental Impact Study are based on the results and findings associated with the scope of field investigations as outlined in **Section 3.0** of this report, as they relate to The Project, as described in **Section 1.0**.

Appendix B

Site Plan



SITE PLAN

SCALE: 1" = 30'-0"

PAGE: 1/1 SITE PLAN

SECTION LETTER A | PAGE NUMBERS 1 1

SCALE: 1" = 30'-0"

DRAWN BY:

DATE: May 24, 2023

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Appendix C

NHIC Map

Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland
- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)
- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan
- Boundary
- River Valley Connections

Land Use Designations
- Protected Countryside
- Towns and Villages
- Hamlets
- Urban River Valley
- Specialty Crop Area

Niagara Escarpment Plan (NEP)
- Boundary
- Parks and Open Space System

Land Use Designations
- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)
- Boundary

Land Use Designations
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

0.7 0 0.33 0.7 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

NHIC Map

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Drawn By: MW	Scale: See Scale Bar
Checked: RB	Date: August 2023
Project No.: 7559	Drawing File No.: Appendix C

Appendix D

Site Photographs

Photo # 1

Location: 44.58128, -78.3952

Photo Direction: East

Date: July 20, 2023

Photo Description: Dry – Fresh Sugar Maple Deciduous Forest (FOD 5-1) located in the southeast corner of the Subject Property.

Photo # 2

Location: 44.58159, -78.3959

Photo Direction: East

Date: July 20, 2023

Photo Description: Dry-Fresh Sugar Maple – Hemlock Mixed Forest (FOM3-2) located on either side of the wetland running through the Subject Property.

Photo # 3

Location: 44.58134, -78.39677

Photo Direction: southeast

Date: July 20, 2023

Photo Description: White Cedar – Hardwood Organic Mixed Swamp (SWM4-1) located in the approximate center of the Subject Property.

Photo # 4

Location: 44.5815, -78.397

Photo Direction: southwest

Date: July 20, 2023

Photo Description: Interface between Dry-Fresh Sugar Maple – Hemlock Mixed Forest (FOM3-2) and White Cedar – Hardwood Organic Mixed Swamp (SWM4-1).

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Photographic Log

Client Name: Rosanne Byles

Project #: 7559

Site Location: Part Lots 15 and 16, Fire Route 89 Township of Harvey, Municipality of Trent Lakes, County of Peterborough, Ontario