ENVIRONMENTAL IMPACT STUDY

County Road 49
Municipality of Trent Lakes

November 2023

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

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November 8, 2023
RS# 2023-117

Nick Fegan
TD Consulting Inc.

Via e*mail to:* nick@td-consulting.ca

SUBJECT: Environmental Impact Study, Part of Lot 18, Concession 19, 00 County Road 49, Trent Lakes, County of Peterborough

Dear Mr. Fegan:

RiverStone Environmental Solutions Inc. is pleased to provide you with the attached report.

Please contact us if there are any questions regarding the report, or if further information is required.

Best regards,

RiverStone Environmental Solutions Inc.

Report prepared by:

Bev Wicks, Ph.D.
Senior Ecologist, Principal

Mike Francis, M.E.S., H.B.Sc., E.P.
Ecologist

ENVIRONMENTAL ASSESSMENT NON-TECHNICAL SUMMARY

<table>
<tr><td colspan="2">Type of Study
Environmental Impact Study</td><td>Date
November 8, 2023</td></tr>
<tr><td>Project Manager
Bev Wicks</td><td>Legal Description
Part of Lot 18, Concession 19, Former Geographic Township of Harvie, Municipality of Trent Lakes, County of Peterborough</td><td>Development Proposed
Draft Plan of Subdivision</td></tr>
<tr><td></td><td>Planning Authorities
Municipality of Trent Lakes, County of Peterborough</td><td>Agent
Nick Fegan, TD Consulting Inc.</td></tr>
<tr><td colspan="3"><u>Report Summary</u>

This study has been prepared to assess natural heritage constraints associated with a property described as Part of Lot 18, Concession 19 in the Municipality of Trent Lakes, County of Peterborough. It is our understanding that the proponent is coordinating applications for a plan of subdivision on the subject property. Due to the presence of natural heritage features, approval authorities require that an Environmental Impact Study be prepared to accompany applications for development. Based on both a desktop assessment and on-site investigation, RiverStone has determined that:

1. The study area is located within one or more natural heritage features that receive protections under applicable policy and legislation.
2. Development of a plan of subdivision would inherently result in a loss of natural vegetation cover and associated wildlife habitat functions.
3. Further discussion is provided in this report to assess the functionality of on-site features and provide recommendations for mitigation where feasible and applicable.</td></tr>
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1 BACKGROUND & CONTEXT

RiverStone Environmental Solutions Inc. (hereafter RiverStone) was retained by Nick Fegan of TD Consulting to prepare an Environmental Impact Study (EIS) report for proposed development on a property described as 00 County Road 49 (Pt. Lot 18, Conc. 19, geographic Township of Harvie), Municipality of Trent Lakes, County of Peterborough (hereafter 'subject property'; see **Figure 1**). The subject property is approximately 11 ha, and is located a short distance north of the settlement area of Bobcaygeon. The access road, County Rd. 49, represents the dividing line between the City of Kawartha Lakes and Municipality of Trent Lakes (County of Peterborough). The local area supports a mix of agricultural lands, natural features, and mixed rural residential properties.

It is our understanding that the proponent is seeking to develop a small, rural residential subdivision on the subject property. The subdivision would include 14 lots ranging from 0.5-0.8 ha, each supported by private septic and well, consistent with an existing subdivision on lands directly adjacent to the east. Additionally, a small storage facility block measuring ~1.77 ha would be located at the southern extent of the property, adjacent to a municipal works yard on lands to the south. As a whole, the development footprint would encompass the entirety of the subject property.

For planning context, the subject property is zoned 'Development' (D) according to the Town's Zoning Bylaw. Schedule A1 to the Town's Official Plan (OP) designates the entirety of the subject property as Hamlet. Schedule B1 contains a series of natural heritage overlays, none of which are presently applicable to the subject property. The property is contained within the watershed-based regulatory jurisdiction of the Kawartha Region Conservation Authority (KRCA) under Ontario Regulation 182/06 of the *Conservation Authorities Act*. Only a small portion of the property is presently contained within a mapped regulated area, associated with a small mapped wetland feature. However, the regulation is considered 'text-based' meaning that mapping should not be considered comprehensive in determining where the regulation applies. For reference, **Appendix 1** provides the various schedules/maps displaying these identified designations/layers.

While planning resources do not identify any natural heritage/environmental protection designations or overlays associated with the subject property, the property does contain a portion of a local woodland feature, wetlands, and other successional vegetation communities. These features have the potential to support significant wildlife habitat and/or habitat for species protected under the provincial *Endangered Species Act*. This report outlines an assessment process used to determine the extent of such features and the applicability of any policy or regulatory protections within the jurisdiction.

To summarize, it is our understanding that this EIS was initially requested by KRCA to address potential impacts to natural heritage features. The initial goal of the assessment is to determine the presence, extent, and function of natural heritage features distributed throughout the subject property and adjacent lands. The report identifies any potential impacts resulting from the prospective development and offers recommended measures to mitigate such potential impacts. From this, we undertake a review of whether the proposed development is capable of conforming and complying with local/provincial planning policies and other applicable environmental regulations. The EIS is prepared to accompany any potential required applications for planning approvals and/or regulatory permits (e.g., KRCA permit), should these be required to facilitate development.

2 APPROACH AND METHODS

The approach and methods used to carry out this EIS are detailed in this section. Broadly speaking, this includes:

1. Identifying a study area in which to focus assessment efforts.
2. Gathering and reviewing background biophysical information for the study area, including existing natural feature mapping and records for species of conservation interest which are relevant to the study area.
3. Conducting site investigations and targeted survey methods (where appropriate), as well as consulting with relevant agencies, to field-verify the presence or absence of relevant features, *e.g.*, woodlands, wetlands, habitat for endangered or threatened species, etc.
4. Determining the potential for negative impacts to identified features associated with implementation of development plans.
5. Identifying methods by which potential negative impacts can be mitigated via avoidance, minimization, and/or compensation measures.

2.1 Identification of Study Area

The primary focus of this assessment is the subject property on which development is proposed (see **Figure 1** and **Figure 2**). Informally, the study area also incorporates a 120 m radius around the limits of the parcel, a measure that is intended to ensure appropriate consideration for natural heritage features and functions of adjacent lands, consistent with direction in the Natural Heritage Reference Manual (NHRM) under the Provincial Policy Statement (PPS). The study area includes consideration for adjacent privately-owned lands; however, assessment of such areas is limited to a desktop review and only discussed if/where relevant.

2.2 Background Information Sources Reviewed

Information pertaining to the natural features and functions of the subject and the surrounding lands was obtained from the following sources:

- **Municipality of Trent Lakes Official Plan** (Adopted August 2013)
- **County of Peterborough Official Plan** (Amended December 2022)
- **Kawartha Region Conservation Authority Regulated Area** Mapping
- **Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Areas and Natural Heritage Information Centre (NHIC)** database regarding information on occurrences of SAR and provincially tracked species (squares: 17PK9437, 17PK9436, 17PK9536, 17PK9537); accessed September 2023, at: http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US).
- **Ontario Breeding Bird Atlas (OBBA) database and the Atlas of the Breeding Birds of Ontario, 2001–2005** (Cadman et al. 2007) regarding birds that were documented to be breeding in the vicinity of the study area during the 2001–2005 period (accessed September 2023 at: http://www.birdsontario.org/atlas/squareinfo.jsp).

- **Ontario Reptile and Amphibian Atlas (ORAA)** database regarding records of reptiles and amphibians that have been observed within the vicinity of the study area (accessed September 2023 at: http://www.ontarioinsects.org/herpatlas/herp_online.html).
- **Distribution of Fish Species at Risk** generated by Fisheries and Oceans Canada (accessed at: http://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html).
- **Atlas of the Mammals of Ontario** (Dobbyn 1994) regarding mammal records within and adjacent to the study area.
- **Physiography of Southern Ontario** (Chapman and Putnam 2007) for information pertaining to the physiography and soils of the study area and adjacent lands.
- **Species at Risk (SAR) range maps** (accessed Oct 2023 at: http://www.ontario.ca/environment-and-energy/species-risk-ontario-list).
- **iNaturalist** (accessed Oct 2023 at: https://www.inaturalist.org).
- Digital Ontario base maps and aerial photography resources

2.3 Site Assessment Methods

2.3.1 Habitat-based Wildlife Assessment

RiverStone's primary approach to site assessment is habitat-based. We first focus on evaluating the potential for significant features and species within an area of interest, prior to undertaking any targeted assessments or surveys. An area is considered potential habitat if it satisfies several criteria, usually specific to a species, but occasionally characteristic of a broader group (*e.g.*, several species of turtles use sandy shorelines for nesting, several species of bats use cavity trees as day roosts and maternity sites, etc.). Physical attributes of a site that can be used to assess habitat function include structural characteristics (*e.g.*, age and composition of forest canopy, water depth), ecological community (*e.g.*, meadow marsh, rock barren, coldwater stream), and structural connectivity to other habitat features required by a species of interest or indicator species. Species-specific habitat preferences and/or affinities are determined from status reports produced by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Cadman et al. (2007), published and unpublished documents, and direct experience.

2.3.2 Targeted Wildlife Assessment

Where appropriate, RiverStone explores further species-specific assessments in accordance with applicable standard methods and protocols. Targeted survey efforts may be undertaken due to one or more triggers, such as a specific request from an approval authority, an existing record for a species of interest, or a limitation to a habitat-based assessment (*e.g.*, limited property access). For this study, targeted survey methodologies were employed to support inventory and habitat assessment for multiple species and/or groups, as described in **Sections 2.3.2.1** to **2.3.2.4** below. RiverStone's plan for targeted survey effort was intended to inform a review of potential significant wildlife habitat functions as well as compliance and potential authorizations requirements of the ESA.

2.3.2.1 Breeding Bird Survey

Breeding bird surveys are conducted following general standards of the Ontario Breeding Bird Atlas (OBBA) protocol (Bird Studies Canada et al. 2001). Surveys are conducted at the appropriate time of day (between dawn and 5 hours after dawn), and during appropriate weather conditions (no rain, wind

speed ≤3 on the Beaufort Wind Scale). The purpose of this exercise is two-fold: to identify the presence of potential threatened/endangered bird species, and/or to identify species which may indicate the presence of SWH associated with one or more vegetation communities. The timing, conditions, and other details of RiverStone's breeding bird surveys is provided in **Table 1**. Further discussion on the results of this work is provided in **Section 3**, with potential additional implications pertaining to development constraints discussed in further sections as appropriate.

2.3.2.2 Breeding Amphibian Survey

Breeding amphibian surveys are conducted following general standards of the Marsh Monitoring Program Participants Handbook (Bird Studies Canada et al. 2008). Surveys are conducted at the appropriate time of year and day (one half hour after sunset to midnight), and during appropriate weather conditions (minimal wind, no heavy precipitation, wind speed ≤3 on the Beaufort Wind Scale, etc.). The primary purpose of this exercise is to identify species which may indicate the presence of SWH associated with one or more vegetation communities. The timing, conditions, and other details of RiverStone's breeding amphibian surveys is provided in **Table 1**. Further discussion on the results of this work is provided in **Section 3**, with potential additional implications pertaining to development constraints discussed in further sections as appropriate. We note that, due to the timing of project initiation, only a single, late-season survey was completed to support this assessment.

2.3.2.3 Vascular Plant Survey

Vascular plants are typically inventoried during vegetation community classification efforts and other on-site surveys. Additional observations may be recorded incidentally as part of any other field data collection efforts. In this case, surveys were conducted across the spring and summer growing season, allowing for observation of vascular plants during peak growing conditions. RiverStone maintains a working list of observed vascular plant species and collects field samples of unknown species for future verification. A summarized vegetation list is prepared and reviewed to determine if any observed species are identified as having a conservation status that is relevant within the jurisdiction. Conservation status may include a listing as special concern, threatened, or endangered under the provincial ESA and/or a sub-national conservation rank of S1-S3, as administered by the provincial Natural Heritage Information Center (NHIC).

2.3.3 Physical Assessment (Topography, Surficial Geology, & Drainage)

The geophysical setting of this property was determined using topographic mapping, soils mapping, geological mapping, aerial photography, and descriptions gathered through on-site investigations. Drainage features were identified through the review of background mapping resources and/or delineated in the field.

2.3.4 Vegetation Community Assessment

All natural vegetation communities on the subject property were mapped according to Ecological Land Classification (ELC) community tables (Lee et al., 1998). ELC defines ecological units or communities based on bedrock, climate (temperature, precipitation), physiography (soils, slope, aspect), and corresponding vegetation. Use of the system permits biologists and other land managers to use a common language to describe vegetation communities, which in turn facilitates the identification of communities likely to support certain natural heritage features or functions. The ELC system is an organizational framework that can be applied at different scales. The ecological units most useful for site-specific evaluations are ecosites and vegetation types (also known as ecoelements). In our

experience, the ELC classification key is not comprehensive, and improvised classifications are occasionally used to describe communities, e.g., anthropogenic features. Vegetation communities were delineated via aerial photo interpretation and subsequently confirmed and refined in the field. The boundaries of any identified wetland boundaries were delineated in accordance with the "50% wetland vegetation rule" as directed by the Ontario Wetland Evaluation System (OWES), where feasible.

2.3.5 On-Site Investigations

The background review of biophysical information and general preliminary assessment informed the scoping of field data collection activities undertaken in 2023. Cumulatively, site investigations were focused on characterizing and delineating biophysical features that are considered relevant under the specified scope of this assessment, including potential wetlands, woodlands, drainage features, fish habitat, and biophysical characteristics of the site as they relate to potential habitat for endangered or threatened species. Overall, the on-site data collection effort was considered appropriate to inform potential constraints to the proposed development plan, while recognizing that supplemental data collection may be warranted to finalize certain conclusions. Evidence for the presence of a species (or use of an area by a species) was determined from visual and/or auditory documentation (*e.g.*, song, call) and/or observation of nests, tracks, burrows, browse, and scats (where applicable). Discrete feature boundaries (*e.g.*, wetlands) were delineated with a high-accuracy GPS receiver and all relevant features were photographed and catalogued for inclusion in this report (**Appendix 2**).

Table 1 below summarizes the details of field investigations and primary tasks undertaken in support of the EIS.

Table 1. Site Investigation Summary.

Date	Primary tasks	Staff		Hours Spent on Site
June 19, 2023	General recon review, ELC, Vascular Plant Survey, Breeding Bird Survey 1, Calling Anuran Survey	Mike Francis, Terin Robinson	Air Temperature: 18-25°C; Beaufort Wind: 1; Cloud Cover: 20%; Precipitation: N/A	7 hours
July 5, 2023	Breeding Bird Survey 2	Becca Howe	Air Temperature: 18-20°C; Beaufort Wind: 1; Cloud Cover: 0%; Precipitation: N/A	2 hours

2.4 Key Natural Heritage/Hydrologic Feature Assessment

Provincial and local planning policies employ varying terms for natural heritage features and designations that have recognized 'statuses' within the applicable planning jurisdiction. Being within the County of Simcoe, the subject property is located within the planning area of the Growth Plan for the Greater Golden Horseshoe ('Growth Plan'). Therefore, the terminology used in this report is consistent with the Growth Plan, including reference to relevant features as 'key natural heritage features' (KNHF) and 'key hydrologic features' (KHF). KNHF/KHFs, as defined by the Growth Plan, include the following:

- Permanent & intermittent streams
- Inland lakes and their littoral zones

- Seepage areas and springs
- Wetlands (including provincially significant wetlands)
- Habitat of endangered and threatened species
- Fish habitat
- Areas of natural and scientific interest (life science)
- Significant valleylands
- Significant woodlands
- Significant wildlife habitat
- Sand barrens, savannahs, tallgrass prairies, and/or alvars.

The listed applicable features are assessed in accordance with applicable technical guidance documents, including the following:

- *Municipality of Trent Lakes Official Plan* (2013).
- *County of Peterborough Official Plan* (2022)
- *Natural Heritage Reference Manual (NHRM) for the Natural Heritage Policies of the Provincial Policy Statement* (MNRF 2010)
- *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF 2015).

The potential presence/absence of relevant species of conservation interest, such as endangered and threatened species, are assessed using a combination of the background information review outlined in **Section 2.2** and the habitat-based and targeted approach outlined in **Section 2.3.1**. Our assessment of significant natural heritage features is provided in **Section 4** of this report.

2.5 Impact Assessment and Mitigation Planning

To carry out a rigorous and defensible ecological assessment of potential impacts associated with the proposed development, RiverStone employs the following approach.

1. *Predict* impacts to features and species of conservation interest on the subject property and adjacent lands based on the proposed development plan (from construction to post-completion), including both direct (*e.g.*, vegetation clearance) and indirect (*e.g.*, light pollution, encroachment post-development) impacts.
2. *Evaluate the significance* of predicted impacts to features and species of conservation interest based on their spatial extent, magnitude, timing, frequency, and duration.
3. *Assess the probability or likelihood* that the predicted impacts will occur at the level of significance expected (*e.g.*, high, medium, low probability).

In instances where the potential for negative impacts to features or species of conservation interest exist, ecologically meaningful mitigation measures are offered to avoid, minimize, and/or compensate for such impacts. RiverStone's impact assessment and recommended mitigation measures are provided in **Section 5.**

2.6 Assessment of Conformance with Applicable Environmental Policies

There are several environmental policies (*e.g.*, statutes, regulations, plans, guidance documents, etc.) that may apply to the study area and proposed development, which are listed below. A general assessment of the proposed development's consistency and conformity with these environmental policies is offered in **Section 6**.

- Federal *Migratory Birds Convention Act*, S.C. 1994, c. 22
    - Provincial Policy Statement, 2020, pursuant to the *Planning Act*, R.S.O. 1990, c. P.13
        - Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2010.
        - Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E.
    - Provincial *Endangered Species Act,* S.O. 2007, c. 6
    - Growth Plan for the Greater Golden Horseshow, 2020 Consolidation
    - Municipality of Trent Lakes Official Plan, Adopted August 2013 Consolidation
    - County of Peterborough Official Plan, Amended December 2022
    - Ontario Regulation 182/06 under the *Conservation Authorities Act*, R.S.O. 1990, c. C.27

3 EXISTING CONDITIONS

3.1 General Site Conditions & Land Uses

The area of the subject property is approximately 11 ha, consisting of mixed natural and naturalizing cover, including woodlands, wetlands, and semi-open meadow/thicket cover. It is assumed that these conditions are a result of former pasturing activities, a common occurrence on the local landscape where thin soils preclude productive agriculture. There are no existing buildings or other structures present on the subject property and no evidence of any active land uses.

The property is directly north of, but not contained within the settlement area of Bobcaygeon (part of the City of Kawartha Lakes). However, the property is located in a separate 'hamlet' settlement area along the western boundary of the County of Peterborough. Surrounding land uses include a mix of agricultural (pastures, hay, cash crop) uses, natural cover, a residential subdivision to the east, and a municipal depot to the south.

3.2 Topography, Physiography, and Drainage

The subject property is located in an area of till moraine, part of the broader physiographic region known as the Dummer Moraines. This region is described as containing rough, stony lands over relatively shallow limestone bedrock, bordering the southern limits of the Canadian Shield (Chapman and Putnam 1984). The study area is represented by low rolling hills within a soil unit described as Douro Loam. Both classes are described as very stony till with a shallow depth to underlying limestone bedrock, characterized by irregular to gentle slopes and generally well to excessively drainage (Ontario Soil Survey).

The subject property is contained within the drainage basin of Pidgeon Lake, part of a chain of lakes within the broader Trent-Severn Waterway that ultimately drains south through the Otonabee River. No permanent or intermittent drainage features were identified on the subject property, nor any clear sign of seasonal headwater conveyance. This is reflective of the rapid surface drainage supported by porous till on the local landscape, described above. The nearest defined, mapped drainage feature appears to occur several hundred meters to the west, draining the landscape south to the Bobcaygeon River.

3.3 Vegetation Conditions

Existing vegetation communities within the subject property were assessed through a combination of background review and on-site investigation. A desktop exercise was undertaken to map vegetation community boundaries using background information sources and current aerial photographs; the mapped vegetation communities were then ground-truthed to a high level and refined where necessary during the site investigation. Given the successional/anthropogenic nature of some encountered vegetation assemblages, the assigned ELC codes/descriptions may be general in nature and non-conforming to the ELC guide. Vegetation community mapping with classifications generally based on Lee et al (1998) is provided on **Figure 2**, and descriptions are provided below. Each description includes a list of representative plant species within each community. All species observed within the study area are listed in **Appendix 3**.

3.3.1 ANTH: Anthropogenic – Residential Amenity Space

This is a small area of maintained grass assumed to be minor encroachment from an adjacent residential parcel on Cty. Rd 49.

3.3.2 CUM1: Mineral Cultural Meadow Ecosite

This ecosite is the most open representation of a mosaic of cultural/successional vegetation distributed throughout the subject property, the result of historic pasturing activities. These areas contain mostly open meadow vegetation with minimal shrub/tree coverage, although woody species encroachment appears ongoing and rapid in the absence of livestock grazing. Common species include a mix of European pasture grasses (e.g., *Bromus inermis, Agrostis sp., Dactylis glomerata, Poa compressa*), with other common meadow flora such as Oxeye Daisy (*Leucanthemum vulgare*), Black Medic (*Medicago lupulina*), Red Clover (*Trifolium pratense*), Alfalfa (*M. sativa*), Hawkweeds (*Hieracium* spp.), and Milkweed (*Asclepias syriaca*). Common woody species occurring within this ecosite include Common Juniper (*Juniper communis*), Red Cedar (*J. virginiana*), Buckthorn (*Rhamnus cathartica*), Honeysuckle (*Lonicera tatarica*), Staghorn Sumac (*Rhus typhina*). These are generally sparsely distributed but become more prominent along edges as this ecosite transitions into shrub thicket/woodland.

3.3.3 CUT1: Mineral Cultural Thicket Ecosite

This ecosite is comparable to CUM1 in most ways but supports shrub cover exceeding 50%, dominated primarily by Common Juniper, Red Cedar, and Buckthorn.

3.3.4 CUT1/CUS1: Mineral Cultural Thicket/Cultural Savanna Ecosite

This ecosite is a variation of CUT1, with a sparse tree-height component of Red Cedar, White Cedar, Elm (*Ulmus americana*) and some remnant hedgerow containing Basswood (*Tilia americana*) and

additional Elm. Both Common Juniper and Buckthorn are quite dense in these areas and cover most of the ground surface.

3.3.5 FOC2: Dry – Fresh Cedar Coniferous Forest Ecosite

This ecosite is the only woodland component within the study area, containing a dense canopy of second-growth White Cedar and abundant associate growth of Buckthorn. This growth tends to occur on the middle of rolling slopes proximate to identified wetland communities where the groundwater table is evidently shallower than elsewhere on the property. White Cedar cover tends to thin out and become absent toward the upper portions of slopes, giving way to the various cultural ecosites described above. Toward the lower portions of slopes, the White Cedar canopy transitions into and overhangs areas of identified wetland. Groundcover in this ecosite is generally absent due to dense shading, with some coverage by Buckthorn seedlings, Poison Ivy (*Toxicodendron radicans*), and Dandelion (*Taraxacum officinale*).

3.3.6 MAM2/SWT2: Mineral Meadow Marsh/Swamp Thicket Ecosite

This complex represents a mix of small wetland ecosites/inclusions within the broader successional landscape. Occurring in narrow depressions between rolling hills, these areas comprise a mix of graminoid meadow marsh and mixed shrub thicket. Typical species assemblages include open marsh pockets of Cattail (*Typha latifolia*) and Reed Canary-Grass (*Phalaris arundinacea*), and shrub-dominated communities with Willow (*Salix* spp.) and Dogwood (*Cornus* spp.). Other associate species in rich portions of this complex including Grass-Leaved Goldenrod (*Euthamia graminifolia*), Bulrush (*Scirpus* spp.), Marsh Marigold (*Caltha palustris*), Jewelweed (*Impatiens capensis*), Joe-Pye-Weed (*Eutrochium maculatum*), and Boneset (*Eupatorium perfoliatum*). Several small pockets of open water are present, represented by small, vegetated ponds surrounding mostly by Cattail; however, most portions of these wetlands lack any standing surface water. In some locations, the limits of the wetland community extend into the surrounding White Cedar woodland, representing small inclusions of coniferous swamp.

3.4 Fish & Wildlife Habitat

The combined results of RiverStone's background review and on-site assessment indicate that the study area provides no potential fish habitat but has the potential to support various habitat functions for wildlife. Being within a mix of open areas and a forested landscape setting, local woodlands are likely supporting habitat for common and wide-ranging mammal species, such as White Tailed Deer (*Odocoileus virginianus*), Fisher (*Pekania pennanti*), Black Bear (*Ursus americanus*), Eastern Coyote (*Canis latrans*), Raccoon (*Procyon lotor lotor*), etc. Most of the direct study area lacks mature woodland cover; however, these areas may still serve some function to these species and others. The mostly open nature of the study area may be better suited to regular use by species such as Eastern Chipmunk (*Tamias striatus*), Turkey (*Meleagris gallopavo*), etc.

Several herptile species were observed during our on-site investigation including Midland Painted Turtle (*Chrysemys picta*), Green Frog (*Lithobates clamitans*), and Leopard Frog (*Lithobates pipiens*). Our on-site assessment included a single, late-season survey of calling amphibian activity, with the results summarized in **Appendix 4**. Investigations also included a targeted inventory of breeding birds, documented across six survey stations within the study area. The species documented during this survey are listed in **Appendix 5**.

We note that the subject property and/or surrounding landscape may represent habitat for one or more species protected under the ESA, as evidenced by existing records within the NHIC database, as well as indicative habitat features observed by RiverStone staff during the assessment. All relevant observations of fish and wildlife species and/or habitat features, including individuals of species at risk or other species of conservation concern, are discussed in **Section 4** of this report within the context of KNHFs.

4 KEY NATURAL HERITAGE/HYDROLOGIC FEATURE ASSESSMENT

Based on the biophysical information collected during background information gathering, and the summarized existing conditions of the study area as described above, **Table 2** below identifies all KNHFs (and KHFs) that are present (or potentially present) within the study area. RiverStone's rationale for identifying such features is provided in the sections that follow.

Table 2. Summary of the Assessment of Key Natural Heritage Features and Key Hydrologic Features within the Study Area.

Key Natural Heritage/Hydrologic Feature	Presence/Absence within the Study Area
Permanent & Intermittent Streams	*Absent*. See **Section 4.1**
Inland Lakes and Littoral Zones	*Absent*. See **Section 4.2**
Seepage Areas and Springs	*Absent*. See **Section 4.3**
Wetlands (Including PSWs)	*Present*. See **Section 4.4**
Fish Habitat	*Absent*. See **Section 4.5**
Sand barrens, savannahs, tallgrass prairies, and alvars	*Absent.* See **Section 4.6**
Areas of Natural and Scientific Interest	*Absent*. See **Section 4.7**
Significant Valleylands	*Absent.* **See Section 4.8**
Significant Woodlands	*Absent.* **See Section 4.9**
Habitat of Endangered and Threatened Species	*Present*. See **Section 4.10**
Significant Wildlife Habitat	*Potentially present.* **See Section 4.11**

Shaded rows denote KNHF/KHF that are present or have the potential to be present within the study area.

4.1 Permanent & Intermittent Streams

No permanent or intermittent streams were identified within the study area during RiverStone's on-site assessment or background information review. No further assessment was undertaken.

4.2 Lakes (and Littoral Zones)

No lakes were identified within the study area during RiverStone's on-site assessment or background information review. No further assessment undertaken.

4.3 Seepage Areas and Springs

Wetlands within the subject property may be influenced by groundwater connections and diffuse groundwater seepage, as evidenced by the presence of groundwater-indicative flora (e.g., Watercress). However, no discrete areas of groundwater emergence were observed during on-site investigations, e.g., springs, defined seepage zones, etc. No further assessment undertaken.

4.4 Wetlands

Existing wetland mapping administered by the province does not depict any wetland features as occurring within the subject property (see **Figure 1**). Mapping by KRCA depicts one small wetland polygon in the center of the parcel (see **Appendix 1**), associated with a small pond feature that is evident on orthoimagery. Notwithstanding these background resources, and as described in **Section 3.3**, multiple areas of wetland vegetation were identified within the subject property during our on-site investigations. This includes the polygon mapped by KRCA, as well as a connected network of meadow marsh/thicket swamp vegetation that occurs in depressions in the northwestern portion of the parcel.

Identified wetlands are set within the mosaic of disturbed, successional upland communities. It is assumed that portions of these features may previously have served as on-site watering areas for livestock. Hydrologically, these features appear to be fed by a combination of seasonal, undefined overland drainage from the north, and likely connections with an area of elevated groundwater table. Most wetland areas appear to be underlain by mineral substrates; however, pockets of shallow organics were observed throughout. Several areas of open/vegetated standing water were observed throughout, mostly represented by small ponds and shallow standing pools. Ecologically, these features are generally composed of natural vegetation and provide habitat for one or more sensitive species or classes of wildlife, e.g., breeding amphibians. Potential wildlife habitat functions associated with these features are discussed further under sections below.

Further discussion, including an assessment of potential impacts to this feature resulting from implementation of the proposed development plan, is provided in **Section 5.1**.

4.5 Fish Habitat

Based on our review of site characteristics and background information, there are no features within or adjacent to the study area that have the capacity to support fish habitat. No further assessment undertaken.

4.6 Sand Barrens, Savannahs, Tallgrass Prairies, and Alvars

No vegetation communities representing sand barrens, savannahs, tallgrass prairies, or alvars were identified within the study area during RiverStone's on-site assessment or background information review. No further assessment undertaken.

4.7 Areas of Natural and Scientific Interest (Life Science)

It is the responsibility of the MNRF to designate and administer mapping for areas of natural and scientific interest (ANSIs). Based on available background mapping, the nearest provincial ANSI (Marl Lake) occurs over 8 km southwest of the study area. No further assessment undertaken.

4.8 Significant Valleylands

Significant valleylands represent valleys or other landform depressions with recognized significant attributes, such as supporting natural vegetation cover with associated ecological linkages and corridors. Valleylands are typically associated with a watercourse feature. Designation of significant valleylands is ultimately the responsibility of the relevant planning authority; however, site-specific designation of these feature can be undertaken using standardized criteria endorsed by the province and/or the planning authority.

In this case, applicable OP documents or other resources do not designate lands within the study area as significant valleylands. RiverStone's on-site investigation identified no landform features that may be representative of significant valleylands. No further assessment undertaken.

4.9 Significant Woodlands

Significant woodland features represent areas of forested cover with recognized significant attributes, such as large contiguous blocks of woodland, woodlands with unique characteristics, and/or woodlands that support economic values, cultural values, or other ecosystem services. It is generally the responsibility of the applicable planning authority to designate significant woodland on a comprehensive basis; however, where appropriate, identification of candidate significant woodland can be undertaken on a site-specific basis using standardized criteria endorsed by the province and/or the planning authority.

The subject property contains small patches of successional woodland (as described under **Section 3.3**) that generally lack functional canopy connections with other woodlands on the local landscape. The total extent of continuous canopy cover is estimated to be approximately 4 ha, with most of the remaining successional cover on and adjacent to the property being characterized as shrub thicket. Based on our background review, schedules to the Township OP do not identify these woodland patches as significant woodland (see **Appendix 1**). Moreover, on a jurisdictional basis, there does not appear to be any specific criteria for assessing woodland significance. Therefore, we defer to standardized provincial criteria contained in the Natural Heritage Reference Manual (NHRM) for providing a site-specific assessment in this regard. Criteria in the NHRM is primarily based on the size of an individual woodland patch in comparison to the amount of woodland on the landscape within a given planning area. It is estimated that the Municipality supports >60% woodland cover, which is the highest threshold applied within the NHRM. Woodland patches at least 50 ha in size may be regarded as significant when woodland coverage is this high on the landscape. On this basis, and given the general successional structure of on-site woodland, this feature is not regarded as a significant woodland.

As no areas of definable significant woodlands are located within the study area, no further assessment is provided with respect to this feature. Notwithstanding, it is acknowledged that any existing trees and canopy cover can be assumed to provide some general habitat functions, such as seasonal habitat for migratory birds and habitat for native vegetation. Therefore, the impact discussion provided in **Section 5** addresses general recommended mitigation measures in this regard.

4.10 Habitat of Endangered and Threatened Species

To assess the potential presence of individuals and/or habitat for endangered and threatened species within the study area, RiverStone staff conducted the following:

- Review the range maps for all species designated as endangered and threatened in Ontario, as per Schedules 2 and 3 of Ontario Regulation 230/08 [(Species at Risk in Ontario List (SARO List)], located here: https://www.ontario.ca/laws/regulation/080230. In our experience, the potential presence of most provincially endangered and/or threatened species can be ruled out based on their limited geographical ranges in the province and/or a lack of specific habitat conditions which they require to carry out key life processes.
- Reviewed the NHIC database for existing records of element occurrences for endangered or threatened species (data squares 17PK9437, 17PK9436, 17PK9536, 17PK9537). Databases of iNaturalist, OBBA, and ORAA were also reviewed as of Oct 2023.
- On-site investigation undertaken in 2023, during which vegetation conditions were characterized for habitat-based assessment.

Information from the above assessment process was used to inform a site-specific screening, as contained in **Appendix 6**. The screening is based on a list of terrestrial or wetland species that are known to occur within the regional jurisdiction (*i.e.*, County of Peterborough). Through this screening, the species discussed below were identified as having the potential to be present within the subject property or directly adjacent lands. Where relevant, potential impacts to these species are discussed further in **Section 5.2**.

4.10.1 Black Ash (*Fraxinus nigra*)

Black Ash was added to the SARO List as of January 27, 2022; however, a minimum two-year moratorium has been established before any species- or habitat-level protections are provided under Regulation 242/08 of the ESA. Black Ash were observed in multiple locations in association with the on-site wetland community. As no protections are currently afforded to Black Ash, we provide no further assessment in terms of impacts and impact mitigation. We note that any future site alteration/tree removals associated with the wetland undertaken beyond the lapsing of the above-noted regulatory moratorium (January 27, 2024) may require further assessment and/or authorization to ensure ESA compliance.

4.10.2 Blanding's Turtle (*Emydoidea blandingii*)

This species may be associated with a broad range of wetland conditions and is known to occur across the landscape in which the subject property is located, and particularly on the landscape north of the study area. The ORAA database lists one record of occurrence for this species within the 10 km^2 data square that overlaps the subject property. The NHIC database contains one record of occurrence overlapping the 1 km^2 data square associated with the southeastern portion of the subject property. Finally, a review of the iNaturalist database shows a small number of sparse occurrences on the local landscape, though none specifically on the subject property. From this background records context, we can assume that populations of this species occur on the local landscape, but that none have specifically been documented on the subject property. Due to the presence of wetland features within the study area, we provide the opinion that habitat for this species may technically be present.

As per criteria in the General Habitat Description for the Blanding's Turtle (MECP 2021), landscape-scale connections between wetlands are used to identify and classify various categories of Blanding's Turtle general habitat. Confirmed nesting and overwintering sites and an area within 30 m would be considered Category 1 habitat (low tolerance for disturbance), while suitable wetlands within a broad radius of a confirmed observation are considered Category 2 habitat (moderate tolerance for

disturbance). Woodlands and other areas of natural cover within 30-250 m of such wetlands would represent Category 3 habitat (highest tolerance to disturbance).

To our knowledge, there are no known or potential overwintering sites within the study area. A few very small, shallow ponds were noted within on-site wetlands; however, given the mineral substrate and shallow depth of soils to the underlying bedrock, we do not expect that these features are capable of supporting overwintering habitat. Likewise, obvious signs of nesting areas/substrates were not observed. Therefore, we do not expect that any portion of the study area is representative of Category 1 habitat.

Wetland communities and a 30 m radius to these features may technically constitute Category 2 habitat for Blanding's Turtle. Given the small size of these features and the setting between a busy regional road and residential subdivision, it is unlikely that this species would utilize wetlands on the property as seasonal habitat. These wetlands also lack the structure that is preferred by this species, i.e., large areas of mixed marsh with organic hummocks, floating/emergent vegetation, basking logs, organic substrates, etc. The wetland and successional vegetation mosaic within the subject property may be most likely to support general seasonal movements of this species between areas that support specific life processes. Therefore, in our opinion, the entire property is functionally most representative of Category 3 habitat, i.e., generic woodland/wetland cover with a relatively high tolerance to disturbance. **Section 5.2** provides an assessment of impacts to potential general Blanding's Turtle habitat that may result from implementation of the proposed development plan.

4.10.3 Bobolink (*Dolichonyx oryzivorous*) & Eastern Meadowlark (*Sturnella magna*)

Both Bobolink and Eastern Meadowlark require open grassland-type habitat conditions to carry out key life processes, including artificial conditions created by hayfield production or fallow agricultural fields. These species are discussed herein due to the presence of open meadow/hayfield conditions observed on the subject property that may be considered suitable for one or both species to carry out key life processes.

To review potential habitat suitability/usage by these species, RiverStone conducted targeted breeding bird point count surveys within the study area. No Bobolink were identified during these surveys, indicating that this species is not currently using the cover present within the study area for breeding. Multiple Eastern Meadowlark were recorded from point count stations; however, all observations were attributed to a property on the west side of County Rd. 49 and north of the subject property. From a habitat perspective, vegetation cover within the study area is too thick and contains a higher percentage cover of shrubs/trees than would be appropriate for this species. The areas of the property that do support more meadow-like conditions are likely not large enough to support a breeding territory for this species. While habitat may be located on adjacent lands, this habitat is not considered contiguous with any areas of suitable vegetation cover within the subject property.

Based on the above assessment, the only area of potential habitat for Eastern Meadowlark is associated with adjacent lands. Further discussion, including an assessment of potential impacts to individuals and/or habitat for this species resulting from implementation of the proposed development plan, is provided in **Section 5.2.**

4.10.4 Eastern Whip-Poor-Will (*Antrostomus vociferus*)

This species known to occur across the landscape in which the subject property is located. Preferred breeding habitat is represented by early-successional woodlands or semi-open habitat with similar canopy structure, e.g., rock barrens. The NHIC database contains one record of occurrence overlapping the 1 km^2 data square associated with the southeastern portion of the subject property. A review of the iNaturalist database shows no occurrences reported on the immediate local landscape. From this background records context, we can assume that populations of this species occur on the local landscape, but that occurrences may be sparse and that none have specifically been documented on the subject property.

Targeted evening/nighttime surveys for this species were not conducted to support this assessment. From a habitat perspective, large portions of the property are composed of open meadow and dense Cedar forest, neither of which is regarded as suitable breeding habitat for this species (COSEWIC 2009). Preferred canopy structure is typically represented by successional cover of Pine, Oak, Aspen, or Birch (COSEWIC 2009), and none of these species form an important component of on-site vegetation communities. Preferred breeding habitat also includes minimal groundcover (COSEWIC 2009); however, successional areas within the subject property generally contain dense lower layers of Juniper shrubs. On this basis, we estimate that the subject property does not represent suitable breeding habitat for this species.

COSEWIC 2009 notes that 'shrubby pastures' may be used as feeding habitat, meaning that the subject property may represent a suitable foraging area for any individuals that do breed on the broader landscape. Importantly, the type of former pasture cover present on the subject property is prevalent on the local landscape, meaning that potential foraging grounds are likely not limiting, should a breeding population be present in the local area.

Under the ESA, general habitat areas for Eastern Whip-Poor-Will are identified and categorized based on the location of active nests (see **Table 3**). Based on the above rationale, we do not expect that the subject property is supporting a nest, nor that directly adjacent lands are supporting a nest. This latter interpretation is based on the presence of similarly unsuitable nesting habitat bordering all sides of the property (i.e., roadway, subdivision, Town work yard, and open pastureland). Therefore, we estimate that the subject property is unlikely to support Category 1 or Category 2 general habitat. Given that Category 3 habitat spans up to 500 m from a nest location, it is possible that portions of the subject property are within this distance from a possible nesting area elsewhere on the landscape.

Further discussion, including an assessment of potential impacts to individuals and/or habitat for this species resulting from implementation of the proposed development plan, is provided in **Section 5.2.**

Table 3: Habitat Categorization for Eastern Whip-Poor-Will (MECP, undated)

Category 1	Nest and area within 20 m of the nest (lowest tolerance to disturbance)
Category 2	The area between 20 m and 170 m from the nest or centre of approximated defended territory (moderate tolerance to disturbance)
Category 3	The area of suitable habitat between 170 m and 500 m of the nest or centre of approximated defended territory (highest tolerance to disturbance)

4.10.5 Endangered Bat Species (*Myotis lucifugus, M. septentrionalis*)

These species, assessed as a species guild (related species with similar habitat characteristics), include several bat species listed as endangered in Ontario. Bats are highly mobile; however, individuals and groups of the noted bat species are also recognized as having some degree of fidelity to suitable local sites for daily and seasonal 'roosting' activities. While some species (*i.e.*, *Myotis lucifugus*) exhibit a preference for roosting in anthropogenic structures, natural roosting sites are also important. Natural roosting sites are generally associated with mature forests containing a sufficient density of large trees in various stages of decay, otherwise known as 'snags'. Snags provide features such as cavities and/or loose bark, on which bats rely for shelter and thermoregulation throughout the active season.

Treed features within the study area are limited in extent, including scattered successional communities and hedgerows. The only woodland polygon within the study area is composed entirely of White Cedar. Even in mature settings, this species rarely supports high-quality bat habitat, as these species are not typically conducive to development of functional roosting structures (*e.g.*, cavities, loose bark, etc.). More importantly, observed areas of tree cover are largely limited to young, small diameter trees forming a densely stocked and generally impenetrable area. This structure would not be expected to provide snags, due to the small size of the trees and the inability of bats to access the densely-spaced canopy.

Current direction from MECP prescribes that targeted surveys of treed habitats/snags are not necessary to quantify the quality/extent of potential habitat for endangered bat species IF a project would involve removal of only a small number of potential maternity or day roost trees in treed habitats (or none at all). This approach assumes that other appropriate mitigation measures (*i.e.*, timing windows) are employed to avoid impacts to individuals of endangered bat species (MECP 2021). For the purpose of our assessment, it is RiverStone's opinion that significant habitat features for endangered bat species are unlikely to occur within the study area; however, it is not possible to rule out the potential for *individuals* of endangered bat species (or other bat species) to be present during the active season in any individual trees. Further discussion, including an assessment of potential impacts to individuals of endangered bat species resulting from implementation of the proposed development plan, is provided in **Section 5.2.**

4.11 Significant Wildlife Habitat

SWH represents a range of habitat features that are recognized as providing specialized or otherwise important functions for various forms of wildlife. Designation of confirmed SWH is ultimately the responsibility of the relevant planning authority, and it is our understanding that no specific SWH designations have been applied to the study area. Notwithstanding, candidate SWH can be identified on a site-specific basis, often triggered through a large-scale development application.

To ensure due diligence in this regard, RiverStone has reviewed applicable technical guidance for the identification of specific SWH features and functions as contained in the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015). A preliminary assessment of the criteria schedules is contained within **Appendix 7**. As discussed in **Appendix 7**, the results of RiverStone's field program and background review indicate that the following SWH features/functions have the potential to occur within the subject property or adjacent lands. An impact assessment is provided for potential SWH features in **Section 5.3**.

- Seasonal Concentration Areas of Animals
    - Bat Maternity Colonies

- Specialized Habitat for Wildlife
    - Amphibian Breeding Habitat (Woodland)
- Habitat of Species of Conservation Concern
    - Special Concern and Rare Wildlife Species

4.11.1 Bat Maternity Colonies

Refer to **Section 4.10** for discussion regarding the potential for bat maternity habitat to be present in the study area. While the discussion in **Section 4.10** is provided specifically for endangered bat species, the assessment and conclusions are comparable to species that are not protected under the ESA. From a habitat-based perspective, it appears highly unlikely that on-site vegetation communities would support significant bat maternity colonies. The single identified woodland community is composed of dense, young Cedar, which is not conducive to functional roosting habitat.

4.11.2 Amphibian Breeding Habitat (Woodland)

The wetland community within the study area has some potential to support woodland-dependent amphibian species, specifically various anurans. As noted in **Section 3.4**, only a single, late-season survey was undertaken to support characterization of wetland habitat for breeding amphibians. The results of this survey indicated that calling anurans are present, although the numbers from this single survey are not independently indicative of SWH. Given that early season surveys were not implemented, we conservatively assume that the wetland feature and adjacent woodland habitat has the potential to support this SWH function. **Section 5.3** further discusses this potential function, should it occur, and discusses potential impacts that may result from the proposed development.

4.11.3 Special Concern and Rare Wildlife Species

RiverStone staff have conducted a review of the list of species designated as special concern in Ontario, as per Schedule 4 of Ontario Regulation 230/08, located here: https://www.ontario.ca/laws/regulation/080230. RiverStone further reviewed several biodiversity databases for existing records of element occurrences for special concern or rare species, including: NHIC, iNaturalist, OBBA, and ORAA. The following species have been identified as occurring near the study area (e.g., within 1 km radius via NHIC records) or have otherwise been identified by staff as having the potential to occur within the study area:

- Wood Thrush (*Hylocichla mustellina*; Special Concern)
- Eastern Wood-Pewee (*Contopus virens*; Special Concern)
- Upland Sandpiper (*Bartramia longicauda*; S2B)
- Snapping Turtle (*Chelydra serpentina*; Special Concern)
- Monarch (*Danaus plexippus*; Special Concern)

Of the species listed above, most are recorded in data squares that do not directly overlap the study area or subject property. Importantly, we note that these database squares each cover an area of 1 km^2, meaning that the applicable species records may have been documented a considerable distance from the subject property. Moreover, records in the database may be several decades old, meaning that species once recorded in the local area may be no longer relevant (i.e., locally extirpated due to land use changes or other factors). These records are used as a general guide that, combined with professional experience and an on-site review, is used to support a site-specific screening.

Two of the species listed above, Wood Thrush and Eastern Wood-Pewee, have been documented on the local landscape, but not within the NHIC data squares that directly overlap the property. These common woodland birds are ubiquitous in many areas of woodland cover on the local landscape; however, neither was recorded during breeding bird surveys and on-site habitat structure is generally unsuitable.

Snapping Turtle could likely be found in the smaller wetland pockets within the subject property, and may travel seasonally between various habitat areas on the local landscape. Importantly, there does not appear to be any features within the subject property that could support overwintering for these species, and nesting opportunities appear limited.

Upland Sandpiper is a relatively-rare species on a provincial basis but can be locally common across the regional landscape, e.g., in the vicinity of the Carden plain. Despite records in the local area, this species was not documented during our breeding bird inventory.

Finally, Monarch is often ubiquitous within any open and successional habitats (*e.g.*, meadows, roadsides, woodland edges) where its host plant, Milkweed (*Asclepias* spp.), occurs. Common Milkweed was noted as occurring within the subject property in varying densities, and individual Monarch were noted as well, indicating that Monarch may utilize the subject property to fulfill various life processes.

5 IMPACT ASSESSMENT AND RECOMMENDATIONS

It is our understanding that the proponent is seeking to develop a small, rural residential subdivision on the subject property. The subdivision would include 14 lots ranging from 0.5-0.8 ha, each supported by private septic and well, consistent with an existing subdivision on lands directly adjacent to the east. Additionally, a small storage facility block measuring ~1.77 ha would be located at the southern extent of the property, adjacent to a municipal works yard on lands to the south. As a whole, the development footprint would encompass the entirety of the subject property. The proposed development in relation to natural features is displayed on **Figure 3**. We note that the development plan depicted in **Figure 3** should not be considered survey grade (*i.e.*, for reference purpose only); formal site plan drawings (see **Appendix 8**) should be cited for specific details on proposed future development footprint(s).

RiverStone's impact assessment below is intended to inform a review of the proposal by the appropriate approval authority and/or technical peer reviewer. Our assessment is based on a review of existing conditions at the time of site investigation, as illustrated on **Figure 2** and in the photo record contained in **Appendix 2**. As discussed in **Section 4**, multiple KNHF/KHFs are confirmed or have the potential to occur within the study area. The primary purpose of this report is to assess impacts and support impact mitigation for all features that receive protections under applicable environmental planning policies and regulations. The potential for negative impacts on all identified KNHF/KHFs is discussed in the sections below, and several recommendations are listed to support a scenario of no net negative impacts. In assessing and identifying potential negative impacts through a development process, it is important to highlight how the PPS defines negative impacts, *i.e.*:

> "*…degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities*"

Importantly, as stated in Section 13.2 of the Natural Heritage Reference Manual (for Natural Heritage Policies of the PPS):

> *The PPS definition for "negative impacts" does not state that all impacts are negative, nor does it preclude the use of mitigation to prevent, modify or alleviate the impacts to the significant natural heritage feature or area*".

RiverStone's impact assessment is intended to be reflective of the above guidance, with consideration for the integrity and function of each feature, and in acknowledgement that not all development and site alteration represents a negative impact. RiverStone's assessment is intended to inform a review of the above proposal by the appropriate approval authority.

5.1 Wetlands

Wetlands within the subject property include a series of small, connected features within areas of low elevation between rolling uplands. The cumulative area of mapped wetland within the subject property is approximately 0.88 ha. On-site wetlands support various confirmed or potential ecological functions as discussed in this report; however, the overall small size of the features may be limiting in terms of the overall local/regional significance.

The proposed development footprint encompasses the entirety of the subject property and, therefore, would inherently result in the removal of identified wetland features. Any associated ecological functions of these features would no longer occur within the subject property following development. While this represents a discrete loss of features, we do not expect that this represents any meaningful impact to the local/regional natural heritage system. This property, and the features contained within, are located within an area identified for settlement and intensification, with existing development to the east, south, and a busy roadway to the west. Such contextual factors detract from the potential significance of these small-scale features.

All wetlands within the jurisdiction, previously mapped or otherwise, are regulated by KRCA under Section 28 of the *Conservation Authorities Act* (O.Reg. 182/06). This means that, regardless of the significance/function of this feature, a permit from KRCA will presumably be required to authorize removal of the feature. Section 4.6.2.1(3) of KRCA's Plan Review and Regulation Policies (Aug 2013) states, in part, the following:

> *New development may be permitted within a wetland to facilitate intensification (i.e., infill development) provided that:*
>
> *¬ the wetland is not a bog or fen, or part of a provincially significant wetland;*
>
> *¬ a technical site-specific study demonstrates to the satisfaction of KRCA that all hazards/risks associated with flooding and/or unstable soils have been adequately addressed;*
>
> *¬ it can be demonstrated through an Environmental Impact Study that compensation will be accommodated resulting in "no net loss" of the wetland function while striving to achieve the principle of "net gain" and, where applicable, the maintenance of existing hydrologic and ecological linkages;*

Wetlands within the subject property are not representative of a bog or fen ecosite and are not designated PSW. Given site physiographic context and lack of connectivity to a watercourse, we estimate that removal of these features presents no risk associated with flooding or unstable soils.

Many CAs in southern Ontario administer policies for ecological offsetting/compensation for wetland removal; however, to our knowledge, KRCA has no formal policy in this regard. Per KRCA's policies above, compensation for wetland removal may be required. In this scenario, this would presumably require off-site wetland feature creation or sponsorship of a similar initiative by KRCA or a third party.

We defer to the discretion of KRCA staff in determining such requirements in this scenario. Recommendations for wetland mitigation are as follows:

- **Consult with KRCA staff regarding the applicability of ecological offsetting for removal of wetland ecosites.**
- **If ecological offsetting is determined to be required, determine acceptable metrics and prepare an offsetting plan in cooperation with KRCA staff.**

5.2 Habitat of Endangered & Threatened Species

As per Section 10 of the ESA, areas of identified habitat for any endangered or threatened species are protected from destruction, unless otherwise authorized. Additionally, Section 9 of the ESA protects individuals of endangered or threatened species, prohibiting individuals from being killed, harmed, or harassed without appropriate authorizations. In many cases, mitigation planning is sufficient to ensure that development can occur in a manner that is consistent with the above provisions. The following section(s) provide an assessment of potential impacts to any endangered or threatened species considered relevant to the development application, as determined through our screening exercise (**Appendix 6**) and subsequent assessment in **Section 4.10**.

5.2.1 Blanding's Turtle

The General Habitat Description for Blanding's Turtle (MECP 2021) provides an important guide to identifying various categories of potential habitat for this species. Currently, there is no evidence to suggest that the study area is functioning as the most sensitive form of habitat, Category 1 General Habitat, i.e., overwintering and/or nesting areas. With recorded element occurrences of Blanding's Turtle on the local landscape, all wetlands in the local area (plus a 30 m radius) may technically be considered Category 2 habitat. All remaining surrounding areas of natural cover may represent Category 3 habitat.

Notwithstanding provincial habitat categorization, based on RiverStone's on-site assessment, we do not expect that the study area is supporting important habitat for this species. Despite containing a collection of small wetland polygons, the subject property is primarily composed of dry uplands. Blanding's Turtle tend to be most abundant in areas with higher proportions of wetland coverage, as well as lower road densities. It is possible that individuals may traverse the local landscape, including the study area, through regular seasonal movement; however, the study area appears unlikely to be located within a critical movement pathway due to the presence of the existing built areas and adjacency to a busy regional road.

Proposed development would result in the removal of all wetland and terrestrial habitat from the subject property. Given site-specific context, including the small size of on-site wetlands and lack of observed critical habitat features for Blanding's Turtle, we do not anticipate that the proposal will result in a negative impact to this species. General protective mitigation measures are recommended as follows:

- **Isolate the perimeter of any construction areas using sediment and erosion fencing as per the recommendations provided under Section 5.4.**
- **Survey construction sites each morning to ensure that wildlife are not sheltered in construction equipment, material piles, etc.**
- **If any wildlife is identified on site, stop all active construction activities and verify the identity of the species. Individuals of species protected under the ESA should be permitted to move off the site and/or relocated by a qualified biologist. Other wildlife should be either be gently relocated off the active construction site, or avoided to the extent possible**

5.2.2 Eastern Meadowlark

Eastern Meadowlark were documented calling on lands to the north and west of the subject property, but not on the subject property itself. Therefore, the subject property is not regarded as potential nesting habitat. Eastern Meadowlark are generally tolerable of anthropogenic activities, provided that nesting and foraging areas remain intact. Portions of the subject property do exhibit marginally suitable conditions for foraging habitat; however, these areas are not contiguous with potential habitat on adjacent lands where individuals were documented. Therefore, the proposed development footprint is not considered to be within areas of general habitat as categorized by the province. Development on the subject property is not expected to impact the continued function of adjacent lands as potential habitat for this species.

5.2.3 Eastern Whip-Poor-Will

Per our assessment in **Section 4.10.4**, we do not expect that the subject property or adjacent lands are likely to support a nest; however, other lands on the local landscape could support this function. Therefore, we provide the conservative estimate that the subject property could overlap with areas of Category 3 habitat, defined as *the area of suitable habitat between 170 m and 500 m of the nest or centre of approximated defended territory (highest tolerance to disturbance).* Given the prevalence of similarly-structured vegetation cover on the immediate landscape, development within the subject property would not be expected to impact the availability of foraging opportunities for Eastern Whip-Poor-Will on the local landscape, should they occur.

5.2.4 Endangered Bats

Per discussion in **Section 4.10.5**, it is our opinion that vegetation structure within the subject property is unlikely to support important roosting habitat for bats. On-site ecosites are generally composed of young, successional vegetation, with the only woodland ecosites represented by very dense, successional White Cedar. While these conditions are not amenable to bat roosting colonies, it would not be possible to conclude that individual trees throughout the subject property could not support roosting bats, including individuals of endangered species.

Common direction from MECP regarding impact avoidance for individuals of endangered bats includes strict adherence to vegetation removal timing windows. By limiting the timing window in which trees can be removed to outside of the active season for bats, development activities can avoid incidental harm to individuals of endangered bat species. Assuming implementation of appropriate tree removal timing windows, there is no expectation that the proposal will result in any negative impacts to habitat or individuals of endangered bat species.

Mitigation recommendations related to endangered bats are clarified as follows:

- **Any tree removals required to accommodate potential future development take place outside of the season in which endangered bats may be active, *i.e.*, April 1 – Oct 1.**

- **If tree clearing must occur within the above-noted timing window, additional studies may need to be completed to confirm the presence or absence of SAR bats. These studies can include snag tree surveys and acoustic monitoring of the area where trees will be removed, by a qualified professional. If SAR bats may be impacted by the development proposal, the MECP should be contacted to determine if a permit would be required to proceed.**

5.3 Significant Wildlife Habitat

Section 4.11 described several SWH functions that were identified in an initial screening (**Appendix 7**) as having the potential to occur in association with the study area based on a review of applicable criteria and background information sources. Further habitat-based assessment identified the potential for the following categories of SWH features/functions to be present:

- Amphibian Breeding Habitat (Woodland)
- Habitat for Special Concern and Rare Wildlife Species

Potential impacts to SWH are most effectively assessed on a spatial basis, generally by reviewing potential for impacts to specific ELC ecosites or areas of continuous vegetation cover. In this scenario, as the proposed development would encompass the entirety of the subject property, any associated wildlife habitat functions would no longer be expected to occur post development.

At this time, there is insufficient data available to confirm if on-site amphibian habitat constitutes SWH; however, we can conservatively estimate that this may be the case based on available habitat structure. As discussed under **Section 5.1**, areas of wetland within the subject property may be subject to requirements for offsetting/compensation pending consultation with KRCA. Any potential wetland offsetting should ensure that such measures strive to demonstrate a benefit to areas of amphibian breeding habitat, to demonstrate mitigation for areas of habitat removed from the subject property.

Of the special concern/rare wildlife species discussed in **Section 4.11**, we suspect that habitat on the subject property is likely limited to open, cultural areas supporting Monarch butterfly. While the proposed development would remove potential Monarch habitat from the subject property, the local landscape supports an abundance of such suitable habitat. There is no expectation that development of the property would negatively impact the availability or function of local habitat for this species.

5.4 General Natural Heritage Impact & Mitigation Discussion

As discussed under **Section 4**, there are features contained within the study area that, in our opinion, are not representative of significant features and, therefore, do not receive any form of protection under relevant planning policies of the PPS or local OPs. For example, areas of woodland and successional vegetation on the subject property, while not being regarded as significant, still represent a form of naturalized cover that warrants consideration in terms of development/construction mitigation. Therefore, measures are discussed herein that are intended to mitigate the impacts of removal of vegetation from the subject property and mitigate impacts to retained natural cover on adjacent lands.

Based on existing conditions, it is not evident that the proposed tree removal within the subject property will result in any loss of significant habitat features, habitat for species at risk, or impact to any natural area linkages. The proposed tree removal will result in the loss of approximately 3.2 ha of existing canopy cover, as well as comparable coverage of shrub-dominated ecosites. While not regarded as significant, these areas of vegetation support generic habitat functions for general migratory bird species and common mammal species. Several standard mitigation recommendations are provided below to ensure that tree removals adhere to provincial/federal requirements for wildlife protection and to provide an overview of best management practises pertaining to construction isolation and vegetation removals.

- **Implement sediment and erosion control measures as per applicable best management practices to isolate the development footprint, generally including the following measures.**
    - **Sediment fencing must be constructed of heavy material and solid posts and be properly installed (trenched in) to maintain its integrity during inclement weather events.**
    - **Additional sediment fencing and appropriate control measures must be available on site so that any breach can be immediately repaired.**
    - **Regular inspection and monitoring will be necessary to ensure that the structural integrity and continued functioning of the sediment control measures is maintained (i.e., proper installation is not the only action necessary to satisfy the mitigation requirements).**
    - **An on-site supervisor should be responsible for daily inspections of the sediment and erosion control measures and record the time and date of inspections, the status of the mitigation measures, and any repairs undertaken.**
    - **Removal of non-biodegradable erosion and sediment control materials should occur once construction is complete, and the site is stabilized.**
- **Best Management practices should be utilized with all machinery and fill being imported to the subject property to ensure that material and tracks are free from invasive species (*Phragmites australis*, etc.).**
- **Machinery should arrive on site in clean condition and be checked and maintained free of fluid leaks.**
- **Machinery must be refueled, washed, and serviced within the area isolated by sediment fencing.**
- **Temporary storage locations of aggregate/fill material (where required) should be located within the area isolated by sediment fencing.**
- **Offloading of construction and aggregate/fill materials (where required) should be completed during fair weather conditions.**
- **All stockpiled topsoil/overburden (where required) should be piled in low piles and stabilized as quickly as possible (e.g., erosion-prone areas covered with textile) to minimize the potential for runoff and wind erosion.**
- **Ensure that any future structures are mandated to install motion-sensing and/or downward-facing directional lighting to avoid light pollution into adjacent natural areas.**

- **Post-construction landscaping utilize native, site-appropriate species only.**
- **Avoid any removal of vegetation, including residential/ornamental plantings, between April – August of any given year. If vegetation removals must occur during this period, a nest survey should be conducted by a qualified avian biologist prior to commencement of construction activities to identify and locate active nests of migratory bird species covered by the MBCA or FWCA. If a nest is located or evidence of breeding noted, then a mitigation plan should be developed to address any potential impacts on migratory birds or their active nests. Mitigation may require establishing appropriate buffers around active nests or delaying construction activities until the conclusion of the nesting season.**

6 COMPLIANCE WITH ENVIRONMENTAL LEGISLATION AND POLICIES

The following section outlines the federal, provincial, and municipal environmental legislation, including plans, regulations, and/or bylaws that are applicable to the proposed development. RiverStone provides a list of policies and provisions and summarizes how the development can demonstrate conformity and consistency. Where potential conformity issues exist, we cite recommended mitigation strategies that are intended to guide the proposal toward meeting the intent of relevant requirements.

6.1 Federal *Fisheries Act,* R.S.C. 1985

The *Federal Fisheries Act* states that:

34.4 (1) No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

35. (1) No person shall carry on any work, undertaking or activity that results in harmful alteration, disruption or destruction of fish habitat.

DFO further states that "under subsection 35(1) a person may carry on such works, undertakings or activities without contravening this prohibition, provided that they are carried on under the authority of one of the exceptions listed in subsection 35(2), and in accordance with the requirements of the appropriate exception. In most cases, this exception would be Ministerial authorizations granted to proponents in accordance with the *Authorizations Concerning Fish and Fish Habitat Protection Regulations."*

It is RiverStone's opinion that proposed development will not result in the death of fish or the harmful alteration, disruption, or destruction of fish habitat.

6.2 Federal Migratory Birds Convention Act (1994)

Part 1, Section 5 of the Migratory Birds Regulations under the *Migratory Birds Convention Act, 1994* (MBCA) prohibits the disturbance or destruction of nests, eggs, or nest shelters of a migratory bird. The provincial *Fish and Wildlife Conservation Act, 1997* (FWCA) extends the protection of bird nests and eggs to species that are not listed under the Migratory Birds Regulations (e.g., Corvids).
For most migratory bird species, nest protections under the MBCA apply for the duration of time that a nest is occupied; however, protections extend beyond the period of occupation for several species that may be common locally, including Pileated Woodpecker, Green Heron, and Great Blue Heron,

amongst others (see Schedule 1 under the Act for full list). For the species listed under Schedule 1, specific conditions must be met in order to damage/remove a nest, including providing notice to the minister in charge, and demonstrating that the nest has not been occupied by an applicable species for a time period specified under Schedule 1.

Based on our on-site assessment, there is no evidence of nesting or suitable nesting habitat on the subject property/study area by any species listed under Schedule 1 to the MBCA. Restricting clearing of vegetation for any development to times outside of the period of April 1 to August 31, inclusive, will avoid destruction of other species' nests and prevent contravention of Section 5 of the regulations. If vegetation removal must occur during this period, a nest survey should be conducted by a qualified avian biologist prior to commencement of construction activities to identify and locate active nests of migratory bird species covered by the MBCA or FWCA. If a nest is located or evidence of breeding noted, then a mitigation plan should be developed to address any potential impacts on migratory birds or their active nests. Mitigation may require establishing appropriate buffers around active nests or delaying construction activities until the conclusion of the nesting season.

6.3 Provincial *Endangered Species Act*, S.O. 2007, c. 6

The ESA protects designated endangered and threatened species in Ontario from being killed, harmed, or harassed (s. 9) or having their habitat damaged or destroyed (s. 10). **Section 4.10** identified one or more species or its habitat having the potential to occur within or adjacent to the study area. **Section 5.2** provided a subsequent discussion of potential impacts to such species and/or associated habitat features, should those species be present within or adjacent to the study area. Based on this assessment, and assuming full implementation of mitigation measures (if/where recommended), it is RiverStone's opinion that no endangered or threatened species or continued function of their habitat are expected to be negatively impacted by implementation of the proposed development (not including Black Ash per below). On this basis, there is no expectation that the proposed development will result in a contravention of the ESA based on current regulations. It is noted that this assessment does not represent 'clearance' with respect to ESA compliance. It remains a proponent's continued and sole responsibility to ensure that a project does not result in a contravention to the ESA.

Note: notwithstanding the above discussion, Black Ash (endangered) was confirmed to occur on the subject property. While no regulatory protections are currently in place for Black Ash, the province is currently undertaking reviews to determine how this species might be regulated in the near future. Based on current regulations, any tree clearing on the subject property planned for after January 27, 2024 must undertake a revised review pertaining to Black Ash to ensure ESA compliance.

6.4 Provincial *Conservation Authorities Act*, R.S.O. 1990 – Kawartha Region Conservation Authority Regulation 182/06

KRCA's regulatory jurisdiction extends to areas within and adjacent to valley and stream corridors, shorelines, hazard lands (*i.e.,* floodplains, valley slopes), watercourses, and wetlands as provided for under O. Reg. 182/06 of the *Conservation Authorities Act, 1990*. KRCA's regulated area encompasses portions of the study area, including regulated wetlands that are proposed to be removed. A permit from KRCA under O. Reg. 182/06 is expected to be required for the proposed development to proceed. The details contained in this report are intended to facilitate review by KRCA staff and further consultation regarding potential impacts to regulated features.

6.5 Provincial Policy Statement, pursuant to the *Planning Act*, R.S.O. 1990, c. P. 13

The Provincial Policy Statement (PPS) is promulgated under the *Planning Act* and provides direction to municipalities on matters of provincial interest related to land-use planning. The PPS was updated in 2020. Municipal OP's must be consistent with the PPS. Key natural heritage-related provisions of the PPS, as assessed in this report, are listed below:

> **2.1.4** Development and site alteration shall not be permitted in:
>
> a) significant wetlands in Ecoregions 5E, 6E, and 7E1; and
> b) significant coastal wetlands.
>
> **2.1.5** Development and site alteration shall not be permitted in:
>
> a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E[1];
> b) significant woodlands in Ecoregions 6E and 7E;
> c) significant valleylands in Ecoregions 6E and 7E;
> d) significant wildlife habitat;
> e) significant areas of natural and scientific interest; and
> f) coastal wetlands in Ecoregions 5E, 6E and 7E[1] that are not subject to policy 2.1.4(b)
>
> unless it has been demonstrated that there will be *no negative impacts on the natural features or their ecological functions.*
>
> **2.1.6** Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.
>
> **2.1.7** Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.
>
> **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, and 2.1.6 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 their ecological functions.

Based on the results of RiverStone's impact assessment, and contingent on the implementation of the recommendations outlined in **Section 5** of this report, it is RiverStone's opinion that the development can be accomplished in a manner that is consistent with Sections 2.1.4 to 2.1.8 of the PPS.

6.6 Growth Plan for The Greater Golden Horseshoe, pursuant to the *Places to Grow Act*, S.O. 2005

The Growth Plan provides direction to municipalities on matters of provincial interest related to land-use and growth planning within the Greater Golden Horseshoe planning area. The Growth Plan complements a series of other land-use plans associated with scoped planning jurisdictions, such as the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan. Being within the boundaries of the County of Simcoe, the study area is contained within the planning jurisdiction of the Growth Plan, the policies of which would be administered by local planning authorities (i.e., the Town and/or County of Simcoe).

Section 4.2 of the Growth Plan outlines a series of policies and provisions intended to direct growth and intensification toward designated settlement areas, and to protect natural heritage features on the landscape. The Growth Plan further provides direction for identifying a local Natural Heritage System (NHS) and stipulates how development should take place in association with the NHS. The core natural heritage protection policies of the Growth Plan are contained within Sections 4.2.2 – 4.2.4, inclusive. To our knowledge, all of these policies are considered applicable to lands outside of settlement areas only. As the proposed development is situated within a Hamlet designation (presumably representative of an established settlement area), natural heritage protection policies of the Growth Plan are not considered applicable and not discussed herein.

6.7 County of Peterborough Official Plan (2022 Consolidation)

The County's of Peterborough outlines goals, objectives, and policies pertaining to land use within the planning jurisdiction of the County, including allowable uses within and proximate to natural heritage features. Section 4.1.3.1 of the OP states that:

> *Development and site alterations within provincially significant wetlands and in significant portions of the habitat of endangered and threatened species is not permitted…. However, with the exception of the Oak Ridges Moraine Policy, development or site alteration such as filling, grading and excavating may be permitted within or adjacent to the remaining natural heritage features listed in Section 4.1 of this Plan, provided that it has been demonstrated by an Environmental impact assessment that there will be no negative impacts on the natural features or ecological functions for which the area is identified.*

As per discussion provided herein, the proposed development is not located within PSWs or confirmed habitat for endangered and threatened species. This report has been prepared to provide an assessment of the proposal as it relates to all other applicable natural heritage features, satisfying the County's requirement for submission of Environmental Impact Assessment. While certain features identified within the subject property require removal to accommodate development, mitigation measures have been discussed and recommended herein to support demonstration of no negative/net negative impacts to natural heritage features.

6.8 Municipality of Trent Lakes Official Plan (2013 Consolidation)

As per Schedule A1 to the Township OP, the subject property is designated as Hamlet, with no environmental constraints identified on Schedule B1. This report has been prepared to satisfy the Township's requirements for protection of the environment, as outlined in Section 5.1.10 of the OP, including submission of an NHE/EIS. Per Section 5.1.10.1, the OP identifies several applicable features as 'Natural Environmental Features', including 'other wetlands' and 'significant wildlife habitat'. Section 5.1.10.1(a) states that it is the objective of the OP to protect such natural features and areas for the long term; however, there are no specific policies that prohibit development with non-PSW wetlands. Section 5.1.10.7(c) mirrors the policies of the PPS in prohibiting development within significant wildlife habitat unless it can be demonstrated that there will be no negative impact. While proposed development may result in loss of wildlife habitat function from the subject property, the scale of such potential functions as they may occur within the subject property is considered insignificant on a local landscape basis. Mitigation measures have been provided to guide the proposal in avoiding net negative impacts to identified wildlife habitat functions.

Given that the subject property is designated for residential uses within a Hamlet area, it does not appear that areas of natural coverage on the subject property are regarded as potentially significant on a

planning basis. It is our opinion that the proposal appears consistent with the natural heritage protection policies and objectives of the municipality.

7 CONCLUSIONS

The preceding report provides the results of RiverStone's EIS. This report includes details regarding existing physical and ecological conditions on the subject property, a description of the development plan, an assessment of potential impacts to identified features (if present), and a general assessment of consistency and conformity with relevant municipal, provincial, and federal environmental policies.

Based upon the findings presented in this report and contingent upon the implementation of and adherence to the recommendations made herein, it is our conclusion that proposed development can be accomplished in conformity with relevant legislation and planning policies. We advise that any recommended mitigation measures outlined in **Section 5** be implemented through conditions of draft plan approval as outlined herein.

8 REFERENCES

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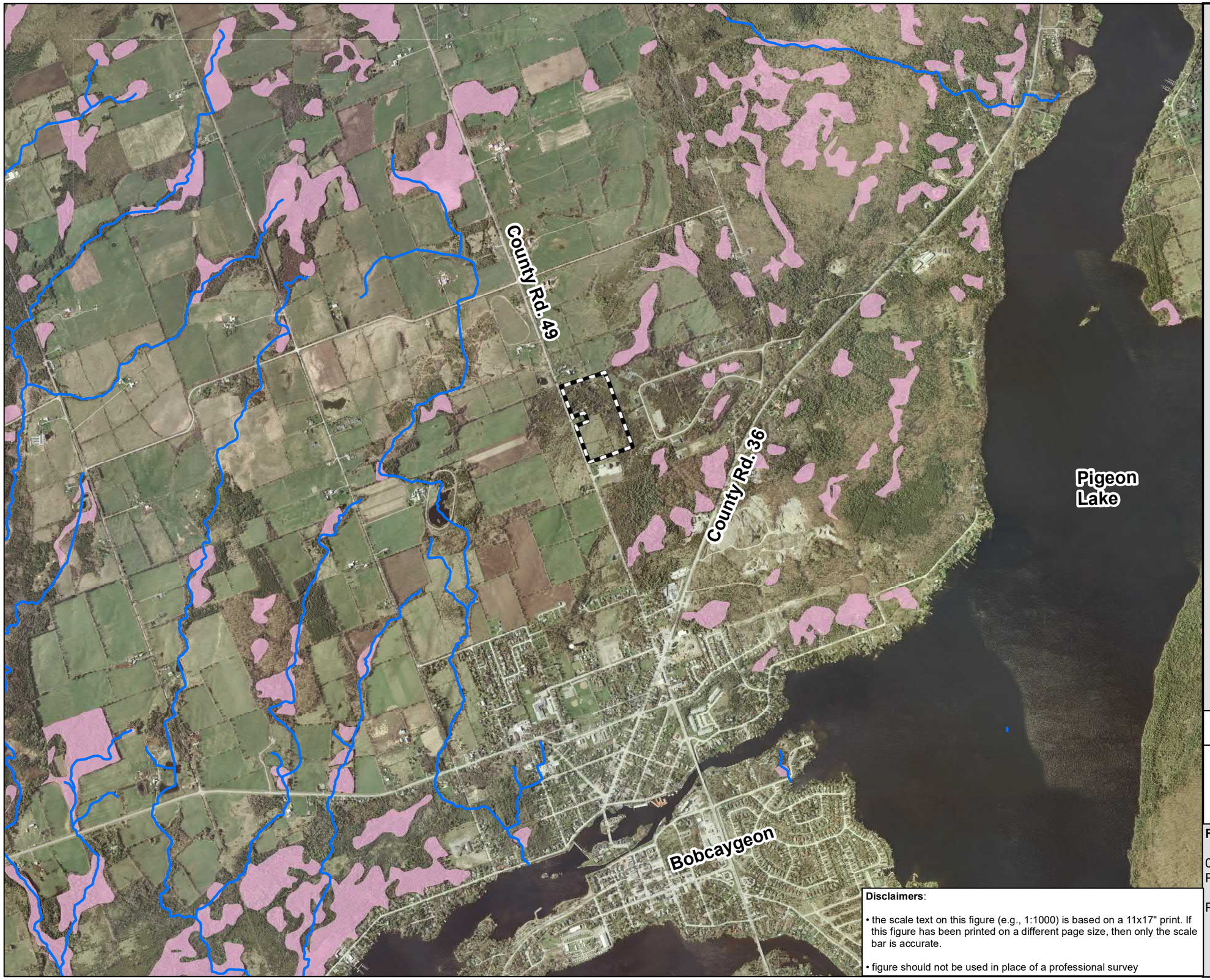


Legend

N

Subject Property

Landscape Drainage Network

Provincial Wetland Layer (Land Information Ontario)

Unevaluated Wetland

Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:20,000	2022-117	Oct 25, 2023	RS

0 300 600 Metres

RiverStone Environmental Solutions Inc

Disclaimers:

- the scale text on this figure (e.g., 1:1000) is based on a 11x17" print. If this figure has been printed on a different page size, then only the scale bar is accurate.
- figure should not be used in place of a professional survey

Figure 1. Property Location and Context.

00 County Road 49, Trent Lakes, County of Peterborough

Prepared for: Nick Fegan, TD Consulting

Legend

N

- Subject Property
- 1,2,3 Bird Survey Stations
- 1,2,3 Anuran Survey Stations
- Wetland (Delineated by RiverStone, June 2023)
- Woodland (Assessed as Non-significant Woodland)

Vegetation/Land Cover (ELC)

- ANTH: Anthropogenic - Residential Amenity Space
- CUM1: Mineral Cultural Meadow Ecosite
- CUT1/CUS1: Mineral Cultural Thicket/Cultural Savannah Complex
- CUT1: Mineral Cultural Thicket Ecosite
- FOC2: Dry - Fresh Cedar Coniferous Forest Ecosite
- MAM2/SWT2: Mineral Meadow Marsh/Thicket Swamp Ecosite

Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:1,900	2022-117	Oct 30, 2023	RS

0 25 50 Metres

RiverStone Environmental Solutions Inc

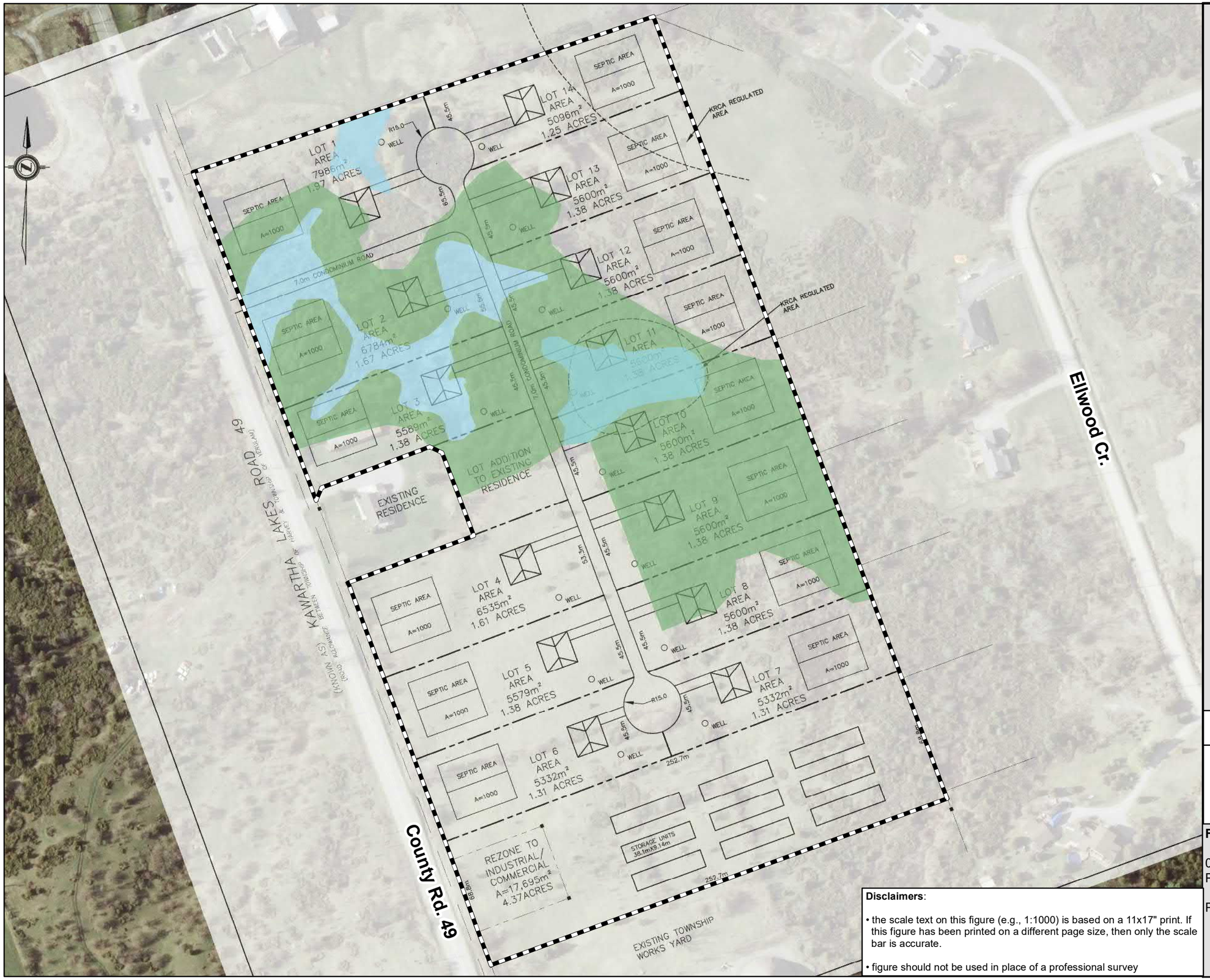
Figure 2. Existing Conditions.

00 County Road 49, Trent Lakes, County of Peterborough

Prepared for: Nick Fegan, TD Consulting

Disclaimers:

- the scale text on this figure (e.g., 1:1000) is based on a 11x17" print. If this figure has been printed on a different page size, then only the scale bar is accurate.
- figure should not be used in place of a professional survey



Legend

- Subject Property
- Wetland (Delineated by RiverStone, June 2023)
- Woodland (Assessed as Non-significant Woodland)

Concept plan by TD Consulting, Dated Nov 2022

Orthorectified aerial photo - spring 2018

Scale	RS Project No.	Date Last Updated	By
1:1,900	2022-117	Oct 30, 2023	RS

0 25 50 Metres

RiverStone Environmental Solutions Inc.

Figure 3. Proposed Development.

00 County Road 49, Trent Lakes, County of Peterborough

Prepared for: Nick Fegan, TD Consulting

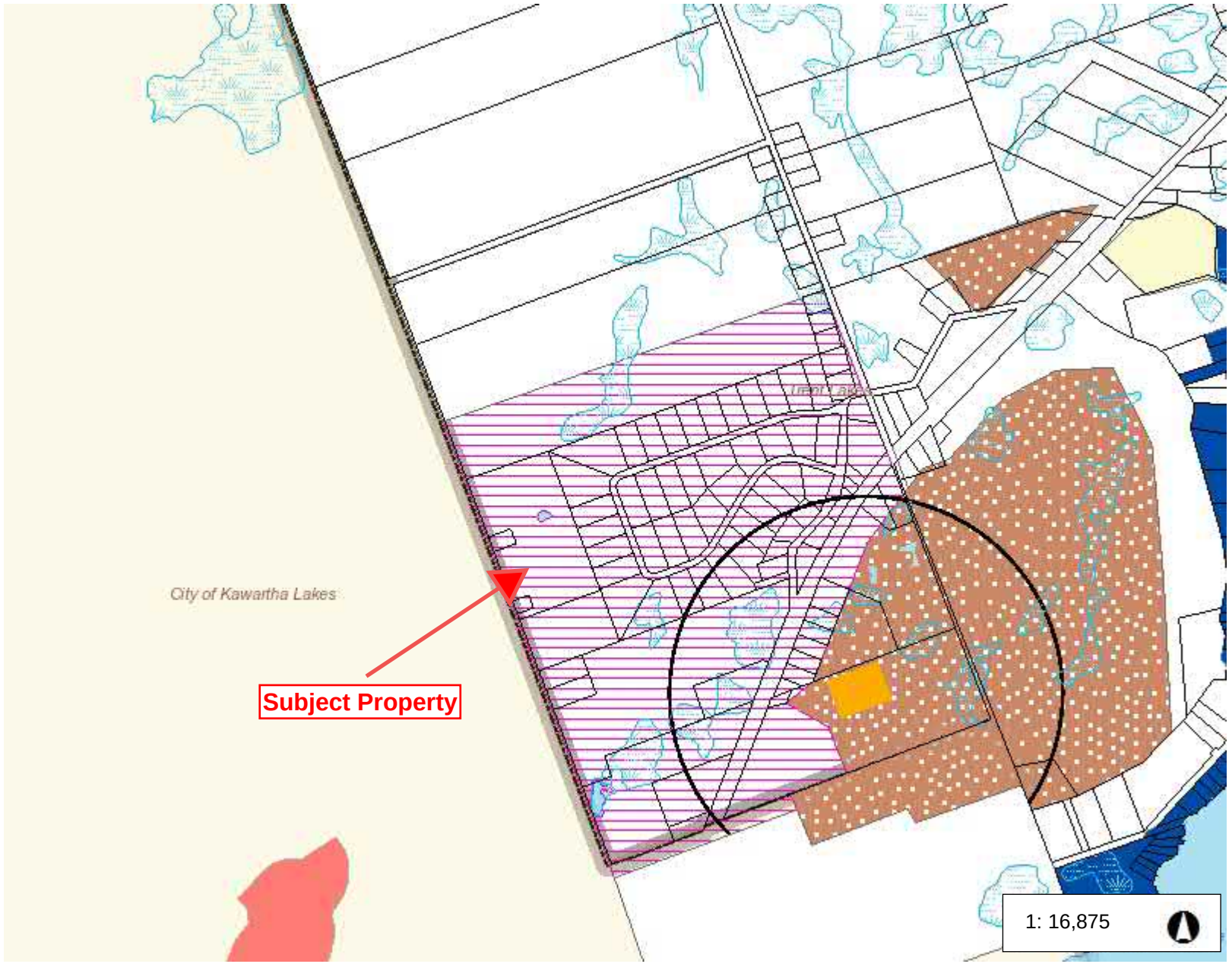
Disclaimers:

- the scale text on this figure (e.g., 1:1000) is based on a 11x17" print. If this figure has been printed on a different page size, then only the scale bar is accurate.
- figure should not be used in place of a professional survey

Appendix 1. Planning Schedules/Maps

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

County of Peterborough



Legend

- First Nations
- Parcel Fabric
- Parcel First Nations - Canada
- Clean Water Act Policies Apply
- Provincially Significant Wetland
- Locally Significant Wetlands
- Non-evaluated Wetlands
- TL OP Special Policy
- TL OP Landuse
  - Active Landfill Site
  - Aggregate Resource Extraction
  - Closed Landfill Site
  - Commercial
  - Crown Land
  - Environmental Protection
  - Estate Residential
  - Former Landfill Site
  - Hamlet
  - Industrial
  - Landfill Site - Area of Influence
  - Provincial Park
  - Provincially Significant Wetlands (P
  - Recreational Dwelling Area
  - Rural
- Lakes - Local Scale
- Municipal Boundary - Upper Ti
  - <all other values>
  - COUNTY OF PETERBOROUGH

Notes

857.3 0 428.63 857.3 Meters

NAD83_CSRS98_UTM_zone_17N

N

REFER TO CAVENDISH - SCHEDULE "A3"

REFER TO GALWAY - SCHEDULE "A2"

Subject Property

TOWNSHIP OF NORTH KAWARTHA

TOWNSHIP OF DOURO-DUMMER

ROCKCROFT

BUCKHORN

BOBCAYGEON

LAKEHURST

BURLEIGH FALLS

Mississagua Lake

Cold Lake

Bansa Lake

Agate Lake

Crane Lake

Turtle Lake

Lavery Lake

Spinsser L.

Little Bald Lake

Big Bald Lake

Pigeon Lake

Sandy Lake

Lower Buckhorn Lake

Lovesick Lake

WOLF ISLAND

Buckhorn Lake

FOX ISLAND

BOYD ISLAND

See Schedule No. "A1-1" "NOGIES CREEK"

See Schedule No. "A1-2" "MISKWAA ZIBI RIVER"

SPECIAL POLICY AREA SECTION 5.1.38

SPECIAL POLICY AREA SECTION 5.1.35"

"REFER TO SECTION 5.1.36"

"REFER TO SECTION 5.1.37"

REFER TO SECONDARY PLAN AREA No.1

Legend

- Provincial Highway
- County Road
- Township Road
- Private Road
- Watercourse
- Lakes
- Municipal Boundary
- Lot and Concession Boundary
- Parcel Fabric
- Hamlet
- Rural
- Recreational Dwelling Area
- Estate Residential
- Commercial
- Industrial

Disposal Industrial

- A — Active Landfill Site
- C — Closed Landfill Site
- O — Landfill Site Area of Influence
- Aggregate Resource Extraction
- Mining Area
- Environmental Protection
- Environmental Protection/ Provincially Significant Wetlands
- Crown Land
- Kawartha Highlands Signature Site
- Municipal Well
- 500 metre Well Influence

Produced by Kawartha Conservation Authority
Data Supplied under License by Members of the Ontario Geospatial Data Exchange.
Date Revised: December 2009
As Approved by the County of Peterborough on February 25, 2010.
Plot Date: May 10, 2010

THE TOWNSHIP OF GALWAY-CAVENDISH & HARVEY OFFICIAL PLAN

SCHEDULE "A1" LAND USE & TRANSPORTATION PLAN HARVEY

SCALE 1:50,000

0 1 2 4 6

Kilometres

N

REFER TO CAVENDISH - SCHEDULE "B3"

REFER TO GALWAY - SCHEDULE "B2"

TOWNSHIP OF NORTH KAWARTHA

TOWNSHIP OF DUMMER

Subject Property

ROCKCROFT

BOBCAYGEON

BUCKHORN

LAKEHURST

BURLEIGH FALLS

Mississagua Lake

Cold Lake

Buckhorn Lake

Pigeon Lake

Sandy Lake

Little Bald Lake

Big Bald Lake

Lower Buckhorn Lake

Crane Lake

Turth Lake

Aquatic Lake

Lovesick L.

Spruce Lake

Jackson Lake

BOYD ISLAND

WOLF ISLAND

FOX ISLAND

Legend

- Provincial Highway
- County Road
- Township Road
- Private Road
- Watercourses
- Lakes
- Lot and Concession Boundary
- Municipal Boundary
- ☆ Municipal Water Supply
- Provincially Significant Wetlands
- 120m Wetland Influence

Provincially Significant ANSI

- E Earth Science
- L Life Science
- 50m ANSI Influence
- KRCA Regulated Areas 182/06
- Deer Wintering Areas
- Moose Wintering Areas
- 500 metre Well Influence

Produced by Kawartha Conservation Authority
Data Supplied under License by Members of the Ontario Geospatial Data Exchange.
Date Revised: December 2009
As Approved by the County of Peterborough on February 26, 2010.
Plot Date: May 10, 2010

Township of Galway-Cavendish & Harvey

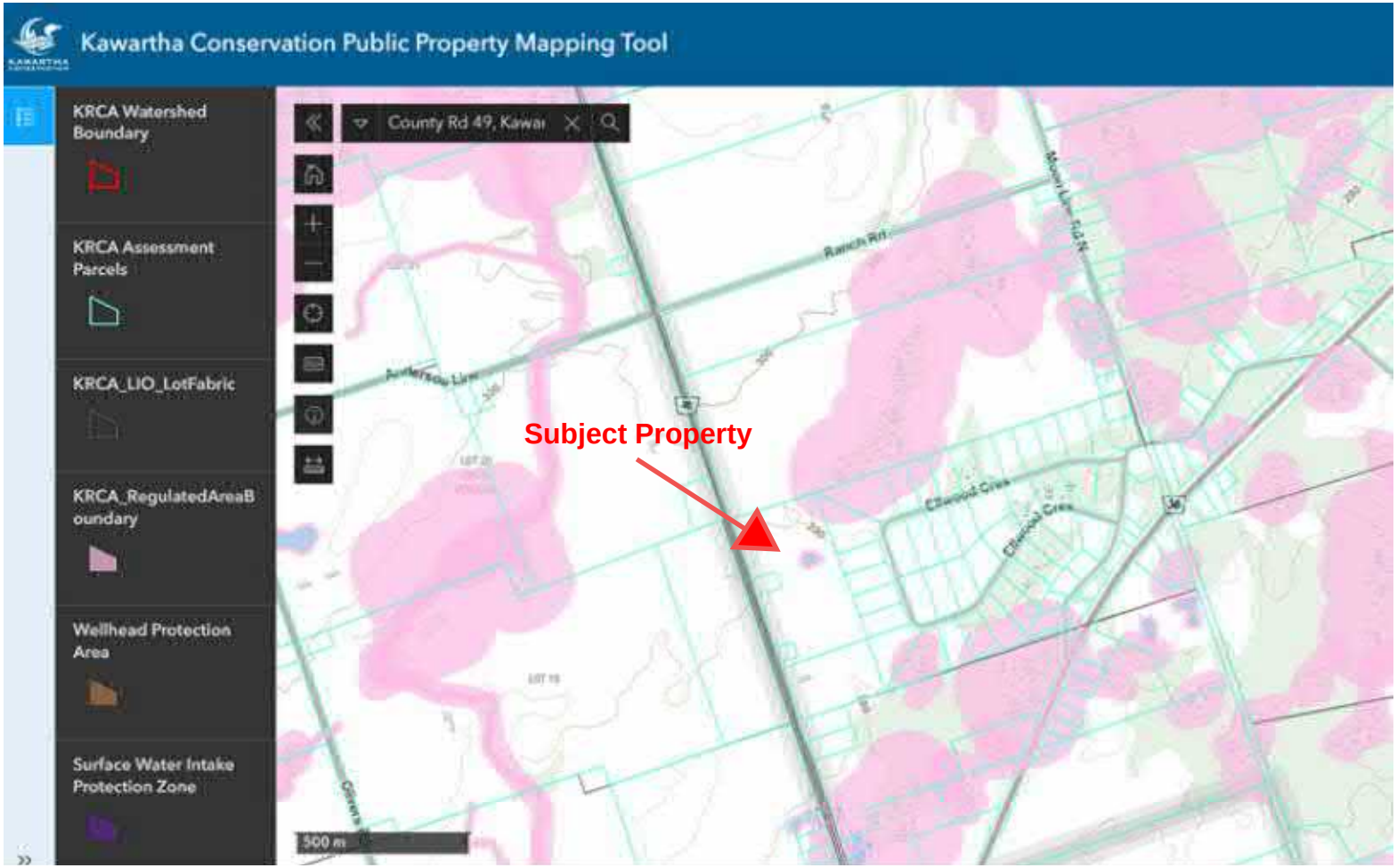
THE TOWNSHIP OF GALWAY-CAVENDISH & HARVEY OFFICIAL PLAN

SCHEDULE "B1" NATURAL FEATURES HARVEY

SCALE 1:50,000

0 1 2 4 6

Kilometres


Kawartha Conservation Public Property Mapping Tool
KRCA Watershed Boundary
KRCA Assessment Parcels
KRCA_LIO_LotFabric
KRCA_RegulatedAreaBoundary
Wellhead Protection Area
Surface Water Intake Protection Zone
County Rd 49, Kawa
Subject Property
500 m

Appendix 2. Representative Photos of Site Conditions

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

Photo 1. Open, dry meadow.

Photo 2. Dry meadow with sparse shrub component.

Photo 3. Dry successional thicket.

Photo 4. Mosaic of meadow, thicket, and sparse treed cover.

Photo 5. Successional Cedar forest.

Photo 6. Cedar forest with dense Buckthorn component.

Photo 7. Small area of open marsh.

Photo 8. Small pocket of Cattail marsh with shallow pond.

Photo 9. Marsh/thicket swamp mix.

Photo 10. Thicket swamp near northwestern corner of property.

Photo 11. Pond with dense floating vegetation.

Photo 12. Narrow area of Cattail and sedge cover.

Appendix 3. Vascular Plant Inventory Data Summary

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

Observed Species		Applicable Status		
Scientific Name	Common Name	G-Rank	S-Rank	ESA
Abies balsamea	Balsam Fir	G5	S5	
Acer negundo	Manitoba Maple	G5	S5	
Acer rubrum	Red Maple	G5	S5	
Acer saccharum	Sugar Maple	G5	S5	
Achillea millefolium	Common Yarrow	G5	SE	
Actaea rubra	Red Baneberry	G5	S5	
Agrostis gigantea	Redtop	G4G5	SE5	
Alisma plantago-aquatica	Common Water Plantain	G5	S5	
Alnus incana	Speckled Alder	G5	S5	
Ambrosia artemisiifolia	Annual Ragweed	G5	S5	
Anemone canadensis	Canada Anemone	G5	S5	
Anemone cylindrica	Long-fruited Anemone	G5	S4	
Anemone virginiana var. virginiana	Virginia Anemone	G5T5	S5	
Apocynum androsaemifolium	Spreading Dogbane	G5	S5	
Aquilegia canadensis	Wild Columbine	G5	S5	
Arisaema triphyllum	Jack-in-the-pulpit	G5	S5	
Asclepias incarnata	Swamp Milkweed	G5	S5	
Asclepias syriaca	Common Milkweed	G5	S5	
Athyrium filix-femina var. angustum	Northeastern Lady Fern	G5T5	S5	
Barbarea vulgaris	Bitter Wintercress	GNR	SE5	
Betula papyrifera	Paper Birch	G5	S5	
Bromus inermis	Awnless Brome	G5TNR	SE5	
Caltha palustris	Yellow Marsh Marigold	G5	S5	
Carex aurea	Golden-fruited Sedge	G5	S5	
Carex cephalophora	Oval-leaved Sedge	G5	S5	
Carex comosa	Bristly Sedge	G5	S5	
Carex eburnea	Ebony Sedge	G5	S5	
Carex flava	Yellow Sedge	G5	S5	
Carex gracillima	Graceful Sedge	G5	S5	
Carex granularis	Meadow Sedge	G5	S5	
Carex interior	Inland Sedge	G5	S5	
Carex intumescens	Bladder Sedge	G5	S5	
Carex lupulina	Hop Sedge	G5	S5	
Carex pedunculata	Long-stalked Sedge	G5	S5	
Carex pellita	Woolly Sedge	G5	S5	
Carex vulpinoidea	Fox Sedge	G5	S5	
Celastrus orbiculatus	Oriental Bittersweet	GNR	SE2	
Centaurea stoebe	Spotted Knapweed	GNR	SE5	
Circaea canadensis	Broad-leaved Enchanter's Nightshade	G5T5	S5	
Cirsium arvense	Canada Thistle	GNR	SE5	
Cirsium vulgare	Bull Thistle	GNR	SE5	
Clematis virginiana	Virginia Virgin's-bower	G5	S5	
Clinopodium vulgare	Field Basil	G5	S5	
Cornus amomum	Silky Dogwood	G5	S5	
Cornus racemosa	Gray Dogwood	G5?	S5	

Observed Species		Applicable Status		
Scientific Name	Common Name	G-Rank	S-Rank	ESA
Cornus stolonifera	Red-osier Dogwood	G5	S5	
Cynanchum rossicum	European Swallow-wort	GNR	SE5	
Cystopteris bulbifera	Bulblet Fern	G5	S5	
Dactylis glomerata	Orchard Grass	GNR	SE5	
Dianthus armeria	Deptford Pink	GNR	SE5	
Dryopteris carthusiana	Spinulose Wood Fern	G5	S5	
Dryopteris cristata	Crested Wood Fern	G5	S5	
Dryopteris marginalis	Marginal Wood Fern	G5	S5	
Echinocystis lobata	Wild Mock-cucumber	G5	S5	
Echium vulgare	Common Viper's-bugloss	GNR	SE5	
Elaeagnus umbellata	Autumn Olive	GNR	SE3	
Epilobium hirsutum	Hairy Willowherb	GNR	SE5	
Epipactis helleborine	Eastern Helleborine	GNR	SE5	
Equisetum hyemale	Common Scouring-rush	G5	S5	
Equisetum scirpoides	Dwarf Scouring-rush	G5	S5	
Erigeron annuus	Annual Fleabane	G5	S5	
Eupatorium perfoliatum	Common Boneset	G5	S5	
Euthamia graminifolia	Grass-leaved Goldenrod	G5	S5	
Eutrochium maculatum var. maculatum	Spotted Joe Pye Weed	G5T5	S5	
Fraxinus nigra	Black Ash	G5	S4	
Fraxinus pennsylvanica	Green Ash	G5	S4	
Geranium robertianum	Herb-Robert	G5	S5	
Geum rivale	Purple Avens	G5	S5	
Glyceria striata	Fowl Mannagrass	G5	S5	
Gymnocarpium dryopteris	Common Oak Fern	G5	S5	
Hypericum perforatum	Common St. John's-wort	GNR	SE5	
Impatiens capensis	Spotted Jewelweed	G5	S5	
Iris versicolor	Harlequin Blue Flag	G5	S5	
Juniperus communis	Ground Juniper	G5	S5	
Juniperus virginiana	Eastern Red Cedar	G5	S5	
Leucanthemum vulgare	Oxeye Daisy	GNR	SE5	
Lithospermum officinale	European Gromwell	GNR	SE5	
Lonicera tatarica	Tartarian Honeysuckle	GNR	SE5	
Lotus corniculatus	Garden Bird's-foot Trefoil	GNR	SE5	
Lysimachia thyrsiflora	Water Loosestrife	G5	S5	
Matteuccia struthiopteris	Ostrich Fern	G5	S5	
Medicago lupulina	Black Medic	GNR	SE5	
Medicago sativa	Alfalfa	GNR	SE5	
Myosotis arvensis	Rough Forget-me-not	GNR	SE4	
Onoclea sensibilis	Sensitive Fern	G5	S5	
Ostrya virginiana	Eastern Hop-hornbeam	G5	S5	
Parthenocissus inserta	Thicket Creeper	G5	S5	
Picea glauca	White Spruce	G5	S5	
Pilosella aurantiaca	Orange Hawkweed	GNR	SE5	
Pinus strobus	Eastern White Pine	G5	S5	

223-117 - List of Observed Vascular Plants

Observed Species		Applicable Status		
Scientific Name	Common Name	G-Rank	S-Rank	ESA
Poa compressa	Canada Bluegrass	GNR	SE5	
Populus balsamifera	Balsam Poplar	G5	S5	
Populus tremuloides	Trembling Aspen	G5	S5	
Potentilla recta	Sulphur Cinquefoil	GNR	SE5	
Prunus virginiana	Choke Cherry	G5	S5	
Pteridium aquilinum	Bracken Fern	G5	S5	
Quercus rubra	Northern Red Oak	G5	S5	
Ranunculus acris	Tall Buttercup	G5	SE5	
Rhamnus cathartica	Common Buckthorn	GNR	SE5	
Rhus typhina	Staghorn Sumac	G5	S5	
Ribes cynosbati	Prickly Gooseberry	G5	S5	
Rosa blanda	Smooth Rose	G5	S5	
Rubus idaeus ssp. strigosus	Wild Red Raspberry	G5T5	S5	

Appendix 4. Breeding Anuran Survey Data Summary

Results of 2023 Calling Anuran Surveys

Station ID	Survey #1 – June 19; 19°C; Wind: 1-2; Cloud: 0-25%; Precip: Nil; Background Noise: Nil; Time: 9:15-10:30.	Comments
1	Grey Tree Frog: 2 (3)	**Survey #1:** Grey Tree Frogs active and continuous calling.
2	Grey Tree Frog: 1 (2)	**Survey #1:** Grey Tree Frogs active but sparse.
3	N/A	**Survey #1:** No Activity. Green Frog heard calling from wetland area across the road and to the west of station 3.
4	N/A	**Survey #1:** No activity Green Frog heard calling from wetland area across the road and to the west of station 3.

Call Level Codes:

Code 1: Calls not simultaneous, number of individuals can be accurately counted

Code 2: Some calls simultaneous, number of individuals can be reliably estimated

Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Appendix 5. Breeding Bird Survey Data Summary

RIVERSTONE
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Job Name: County Road 49 EIS Trent Lakes (RS# 223-117)														
Species Recorded	Survey 1						Survey 2						Breeding Status Estimate	Notes/explanations for observations:
	Station #													
	1	2	3	4	5	6	1	2	3	4	5	6		
American Crow (Corvus brachyrhynchos)	Po	Po	Po								Po	Po	Pr	
American Goldfinch (Spinus tristis)				Po	Po	Po	Po		Po	Po	Po	Po	Pr	
American Robin (Turdus migratorius)				Po						Po	Po			Po	
Black-and-white Warbler (Mniotilta varia)		Po				Po		Po						Pr	
Black-capped Chickadee (Poecile atricapillus)								Po			Po	Po		Po	
Blue Jay (Cyanocitta cristata)	Po	Po	Po		Po	Po	Po			Po				Pr	
Brown Thrasher (Toxostoma rufum)							Po							Po	
Brown-headed Cowbird (Molothrus ater)											Po			Po	
Common Grackle (Quiscalus quiscula)			Po		Po				Po					Pr	
Common Yellowthroat (Geothlypis trichas)										Po		Po		Po	
Eastern Meadowlark (Sturnella magna)							x		x					x	Survey 2, Station 1 & 3: heard calling off property to west.
Eastern Phoebe (Sayornis phoebe)	Po	Po	Po					Po						Pr	
Eastern Towhee (Pipilo erythrophthalmus)			Po				Po	Po			Po			Po	
European Starling (Sturnus vulgaris)											Po			Po	
Field Sparrow (Spizella pusilla)	Po	Po	Po	Po	x	x	Po	Po	Po	Po	Po			Pr	
House Wren (Troglodytes aedon)							Po	Po	Po	Po		Po		Po	
Great Crested Flycatcher (Myiarchus crinitus)			Po								x			Po	
Magnolia Warbler (Setophaga magnolia)		Pr		Po					Po					Pr	
Northern Cardinal (Cardinalis cardinalis)	Po	Po	Po	Po		Po	Po	Po	Po	Po	Po			Pr	
Red-breasted Nuthatch (Sitta canadensis)									Po					Po	
Red-eyed Vireo (Vireo olivaceus)					Po	Po				Po	Po			Po	
Red-winged Blackbird (Agelaius phoeniceus)				Po	Po			Po			Po	Po		Pr	
Song Sparrow (Melospiza melodia)	Po	Po	Po		Po	Po	Co	Po	Po	Po	Po			Co	Observed fledglings
Swamp Sparrow (Melospiza georgiana)												Pr		Pr	
Turkey Vulture (Cathartes aura)				x							x			x	
Veery (Catharus fuscescens)									Po					Po	
Indigo Bunting (Passerina cyanea)	Po													Po	
White-throated Sparrow (Zonotrichia albicollis)							Po							Po	
American Woodcock (Scolopax minor)				x										x	Flushed
Downy Woodpecker (Dryobates pubescens)						Po								Po	
American Redstart (Setophaga ruticilla)						Po								Po	
Yellow Warbler (Setophaga petechia)						Po								Po	

Survey Details		
	Survey 1	Survey 2
Date	2023-06-19	2023-07-05
Staff	M.Francis	B.Howe
Time	8:40-10:00	7:50-9:30
Temperature (C)	18-22	18-20
Wind	0-1	1
Cloud Cover %	0	0
Background Noise Code	1-2	1

Code Explanations
Confirmed (Co): nest building, nest in use, nest with recent eggshells, adult carrying food or fecal sac, distraction display, fledged young
Probable (Pr): multiple singing birds and/or breeding pair in suitable habitat, mating display, territorial behavoir, agitated behavior, brood patch, nest building by cavity nesting species
Possible (Po): singing, species in suitable nesting habitat
Present (x): bird observed but does not fall under other codes
Incidental: The highest breeding code for a species observed >100m from survey stations or on transit between survey stations

Appendix 6. Endangered and Threatened Species Screening

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

Species	ESA Status	General Description of Habitat and Range	Is the study area within the current known range of the species.	Do applicable databases contain records for this species within or adjacent to the study area.	Is suitable habitat present within the study area.	Is suitable habitat present within lands adjacent to the study area.	Discussion of relevance to proposal
American Ginseng (*Panax quinquefolius*)	END	American Ginseng requires well-drained but moist acidic to neutral soils overlying limestone or marble bedrock. They are obligate understory plants found in undisturbed mature deciduous and mixed forests, and occasionally in coniferous forests and swamps.	YES	NO	NO	NO	The forest structure observed within the subject property is not suitable for this species. None were observed during our on-site investigation that included a survey of vascular plants. No further assessment undertaken.
Bank Swallow (*Riparia riparia*)	THR	The Bank Swallow is a small aerial insectivore bird that nests colonially in burrows they excavate within banks. Colonies will nest in bluffs, riverbanks, aggregate pits, roadside embankments, and topsoil piles near open habitat that provides a steady source of insects. Colony sites must also be near roosting areas in wetland, reed, or cane beds.	YES	YES, OBBA	NO	UNKNOWN	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. No further assessment undertaken.
Black Ash (*Fraxinus nigra*)	END	The Black Ash grows everywhere in Ontario except the Far North. These trees require moisture, and are commonly found in northern swampy woodlands, from eastern Manitoba, throughout Ontario, and as far east as Newfoundland.	YES	NO	YES	POSSIBLE	Black Ash was documented within the study area. See report for further discussion.
Blanding's Turtle (*Emydoidea blandingii*)	THR	Blanding's Turtle are semi-aquatic and use wetland habitats with shallow water and abundant vegetation. Their habitat includes a broad range of wetlands, forest clearings, and meadows. They breed in aquatic habitat and nest in open natural and anthropogenic upland areas.	YES	YES, NHIC and Herp Atlas	POSSIBLE	POSSIBLE	See report for further discussion.

[1]Highlighted species are present on or are likely to be present on the subject property.

Species	ESA Status	General Description of Habitat and Range	Is the study area within the current known range of the species.	Do applicable databases contain records for this species within or adjacent to the study area.	Is suitable habitat present within the study area.	Is suitable habitat present within lands adjacent to the study area.	Discussion of relevance to proposal
Bobolink (*Dolichonyx oryzivorus*)	THR	Nests and forages in meadows, grasslands, hayfields, and pastureland. Fields must have 25% or less woody plant cover. They typically require large fields (>4ha) and avoid small, fragmented habitats. They also avoid habitat within 75 m of a forest edge.	YES	YES, NHIC and OBBA	NO	POSSIBLE	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. Individuals were not documented during breeding bird surveys. No further assessment undertaken.
Butternut (*Juglans cinerea*)	END	Butternut is shade intolerant and grows in rich, moist, well-drained loams often along streambanks. Butternut is also found in well-drained gravel sites. It is often found at forest edges where it can access abundant sunlight.	YES	NO	POSSIBLE	POSSIBLE	The forest structure observed within the subject property is marginally suitable for this species; however, none were observed during our on-site investigation that included a survey of vascular plants. No further assessment undertaken.
Cerulean Warbler (*Setophaga cerulea*)	THR	Found in two small breeding clusters in the Carolinian Forest and the Frontenac Axis. They breed in hilly, mature deciduous forests with a preference for oak and/or maple dominated forests with swampy bottomlands. They are area and edge-sensitive and require large continuous tracts of forest.	YES	NO	NO	NO	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. No further assessment undertaken.
Chimney Swift (*Chaetura pelagica*)	THR	The Chimney Swift historically nested and roosted in large hollow trees, rock walls, and other vertical surfaces. They now use human-made structures like uncapped chimneys and have high site fidelity to nesting chimneys. 95% of nests are within 1 km of a waterbody.	YES	YES, OBBA	NO	NO	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. No further assessment undertaken.

[1]Highlighted species are present on or are likely to be present on the subject property.

Species	ESA Status	General Description of Habitat and Range	Is the study area within the current known range of the species.	Do applicable databases contain records for this species within or adjacent to the study area.	Is suitable habitat present within the study area.	Is suitable habitat present within lands adjacent to the study area.	Discussion of relevance to proposal
Eastern Hog-nosed Snake (*Heterodon platirhinos*)	THR	Eastern Hog-nosed snakes require a mosaic of habitats with sandy, well-drained soil and open vegetation close to water with a supply of American Toads. Their Ontario distribution is limited by climate and soil to the French River/Lake Nipissing and Carolinian areas.	YES	NO	NO	NO	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. No further assessment undertaken.
Eastern Meadowlark (*Sturnella magna*)	THR	Nests and forages in meadows, grasslands, shrubby fields, hayfields and pastureland. Prefers habitat with >80% grass cover. Needs a minimum of 5 ha of continuous habitat.	YES	YES, NHIC and OBBA	POSSIBLE	POSSIBLE	Eastern Meadowlark was documented during on-site investigations. See report for further discussion.
Eastern Small-footed Myotis (*Myotis leibii*)	END	Eastern Small-footed Myotis overwinter in caves and mines in Ontario and do not disperse far from their hibernacula during the summer. They can be found roosting in rocky habitats singly or in groups but will also use human structures as day roosts. They are aerial insectivores and forage in forests, rocky habitats, and ponds.	YES	NO	NO	NO	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. No further assessment undertaken.
Eastern Whip-poor-will (*Antrostomus vociferus*)	THR	The Eastern Whip-poor-will forages in open natural and anthropogenic habitats and nests in semi open forests and forest edges with well-drained soils and moderate vegetation cover. Habitat immediately at the nest will be a short herbaceous plant, shrub, or sapling providing cover and shade with nearby perches for adults.	YES	YES, NHIC and OBBA	POSSIBLE	POSSIBLE	See report for further discussion.
Eastern Wolf (*Canis lupus lycaon*)	THR	The Algonquin Wolf range includes Algonquin Park and the surrounding townships. They are known to migrate 15 km to 70 km to the Round Lake deer yard in the winter.	YES	NO	NO	NO	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. No further assessment undertaken.

[1]Highlighted species are present on or are likely to be present on the subject property.

Species	ESA Status	General Description of Habitat and Range	Is the study area within the current known range of the species.	Do applicable databases contain records for this species within or adjacent to the study area.	Is suitable habitat present within the study area.	Is suitable habitat present within lands adjacent to the study area.	Discussion of relevance to proposal
Henslow's Sparrow (*Ammodramus henslowii*)	END	Henslow's Sparrows' current breeding habitat is generally limited to Prince Edward County and the Regional Municipality of Halton. Their habitat is open grasslands with dense vegetation at least 30 cm tall, thick standing dead material, <1% shrub cover, and intermediate moisture. They prefer larger, continuous grasslands and are sensitive to edge effects.	YES	NO	NO	NO	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. No further assessment undertaken.
Least Bittern (*Ixobrychus exilis*)	THR	Breeds in large marshes within Southern Ontario. Creates nest platforms from tall, dense emergent vegetation within 10m of water and prefers Typha spp. Will use other emergent vegetation. Needs 200 ha of wetland for nesting and foraging but does not need to be continuous wetland. Prefers complexes of smaller wetlands. Will avoid marshes surrounded by >30% forest cover or containing large trees.	YES	YES, OBBA	NO	POSSIBLE	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. Wetlands within the subject property are small, isolated, and poorly structured for this species. No further assessment undertaken.
Little Brown Myotis (*Myotis lucifugus*)	END	Their hibernacula are within caves and abandoned mines, wells, and tunnels. Maternity colonies are within a few kilometers of hibernacula within snag trees, rock crevices, exfoliating tree bark, and anthropogenic structures. Roosts and swarming sites are in similar areas around the hibernacula.	YES	NO	POSSIBLE	POSSIBLE	See report for further discussion.
Northern Myotis/Northern Long-eared Bat (*Myotis septentrionalis*)	END	Northern Myotis are found below the tree line in Canada and are mostly absent from the prairies. They use live and dead trees near water in forest habitats when active and migrate to caves and abandoned mines for hibernation.	YES	NO	POSSIBLE	POSSIBLE	See report for further discussion.

[1]Highlighted species are present on or are likely to be present on the subject property.

Species	ESA Status	General Description of Habitat and Range	Is the study area within the current known range of the species.	Do applicable databases contain records for this species within or adjacent to the study area.	Is suitable habitat present within the study area.	Is suitable habitat present within lands adjacent to the study area.	Discussion of relevance to proposal
Red-Headed Woodpecker (*Melanerpes erythrocephalus*)	END	The Red-headed Woodpecker lives in open woodland and woodland edges and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, that the bird uses for nesting and perching. The Red-headed Woodpecker is found across southern Ontario, where it is widespread but rare.	YES	YES, OBBA	NO	POSSIBLE	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. The study area lacks the structure of forest cover preferred by this species. None were documented during breeding bird surveys. No further assessment undertaken.
Short-eared Owl	THR	The Short-eared Owl breeds in northern Ontario and is found year-round in southern Ontario. They use open habitats (tundra, grassland, pasture) to nest on the ground and overwinter in open areas with nearby roosting trees. They shelter from inclement weather in conifers and emergent wetland vegetation.	YES	NO	NO	NO	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. No further assessment undertaken.
Spotted Turtle (*Clemmys guttata*)	END	The Spotted Turtle uses a mix of terrestrial and aquatic habitats. Aquatic habitats include wetlands, ponds, vernal pools, creeks, streams, sheltered bay edges, stormwater ponds, and man-made channels. Their terrestrial habitats are shorelines, rocky outcrops, upland forests, open fields, and meadows.	YES	NO	NO	NO	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. No further assessment undertaken.
Tricolored Bat (*Perimyotis subflavus*)	END	The Tri-colored Bat have a scattered distribution and are found as far north as Sudbury. They are found in a variety of forested habitats They overwinter alone in caves and mines and roost in dead vegetation clumps and lichen in forested habitats near water.	YES	NO	NO	NO	Based on our on-site assessment and background review, there is no expectation that this species is present within the study area. The study area lacks the structure of forest cover preferred by this species. No further assessment undertaken.

[1]Highlighted species are present on or are likely to be present on the subject property.

Appendix 7. Ecoregion 6E Significant Wildlife Habitat Screening

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Seasonal Concentration Areas for Wildlife Species					
Waterfowl Stopover and Staging Areas (Terrestrial)	American Black Duck, Wood Duck, Green-winged Teal, Blue-winged Teal, Mallard, Northern Pintail, Northern Shoveler, American Wigeon, Gadwall	CUM1, CUT1, in addition to evidence of spring flooding	Fields flooded with sheet water during Spring (mid March to May)	**Studies Confirm**: Annual mixed species aggregations of 100 or more total birds **Area of SWH Defined As:** Ecosite plus 100-300m radius	The study area does not contain any features that may support this habitat function. No further assessment provided - not SWH.
Waterfowl Stopover and Staging Areas (Aquatic)	Canada Goose, Cackling Goose, Snow Goose, American Black Duck, Northern Pintail, Northern Shoveler, American Wigeon, Gadwall, Green-winged Teal, Blue-winged Teal, Hooded Merganser, Common Merganser, Lesser Scaup, Greater Scaup, Long-tailed Duck, Surf Scoter, White-winged Scoter, Black Scoter, Ring-necked Duck, Common Goldeneye, Bufflehead, Redhead, Ruddy Duck, Red-breasted Merganser, Brant, Canvasback	MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, SWD1, SWD2, SWD3, SWD5, SWD6, SWD7	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Reservoirs managed as large ponds qualify.	**Studies Confirm**: Mixed species aggregations of 100 or more total birds for 7 days, **and/or** annual use by Ruddy Ducks, Canvasbacks, or Redheads **Area of SWH Defined As:** Ecosites plus 100m radius, includes wetlands and shorelines	The study area does not contain any features that may support this habitat function. No further assessment provided - not SWH.
Shorebird Migratory Stopover Areas	Greater Yellowlegs, Lesser Yellowlegs, Marbled Godwit, Hudsonian Godwit, Black-bellied Plover, American Golden-Plover, Semipalmated Plover, Solitary Sandpiper, Spotted Sandpiper, Semipalmated Sandpiper, Pectoral Sandpiper, White-rumped Sandpiper, Baird's Sandpiper, Least Sandpiper, Purple Sandpiper, Stilt Sandpiper, Short-billed Dowitcher, Red-necked Phalarope, Whimbrel, Ruddy Turnstone, Sanderling, Dunlin	BBO1, BBO2, BBS1, BBS2, BBT1, BBT2, SDO1, SDS2, SDT1, MAM1, MAM2, MAM3, MAM4, MAM5	Shorelines of lakes, rivers and wetlands, including beach areas, bars, groynes, armour rock, and seasonally flooded, muddy and un-vegetated shoreline habitats.	**Studies Confirm**: Mixed species aggregations of 3 or more listed species with >1000 shorebirds counted over the migration period, **and/or** any site with >100 Whimbrel for 3 or more years **Area of SWH Defined As:** ELC shorelines plus 100m radius	The study area does not contain any features that may support this habitat function. No further assessment provided - not SWH.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (January 2015)

[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Raptor Wintering Area	Rough-legged Hawk, Red-tailed Hawk, Northern Harrier, American Kestrel, Snowy Owl **Special Concern**: Short-eared Owl, Bald Eagle	**Hawks/Owls**: one each from forest (FOD, FOM, FOC) and upland (CUM, CUT, CUS, CUW) **Bald Eagle**: forest (FOD, FOM, FOC, SWD, SWM, SWC) on shorelines of large water bodies	Combination of fields and woodlands that provide roosting, foraging and resting habitats. **Hawks/Owls**: >20 ha with a combination of forest and upland; >15ha field habitat; field area windswept with limited snow depth/accumulation **Bald Eagle**: open water, large trees and snags	**Studies Confirm: 1** or more Short-eared Owls, 1 or more Bald Eagles, or at least 10 individuals and 2 of the listed species **and** used ≥3 times in 5 years for a minimum of 20 days **Area of SWH Defined As:** n/a	The study area does not contain any features that may support this habitat function. Cultural communities and woodland patches do not meet minimum area criteria. No further assessment provided - not SWH.
Bat Hibernacula	Big Brown Bat, Tri-coloured Bat	CCR1, CCR2, CCA1, CCA2 Buildings are not SWH	Caves, mine shafts, underground foundations, Karsts Does not include active mines	**Studies Confirm:** confirmed hibernating bats **Area of SWH Defined As:** 200m radius around hibernaculum entrance, 1000m radius for wind farms	The study area does not contain any features that may support this habitat function. No further assessment provided - not SWH.
Bat Maternity Colonies	Big Brown Bat, Silver-haired Bat	All Ecosites in Community Series: FOD, FOM, SWD, SWM Buildings are not SWH	Tree cavities and snags; deciduous or mixed stands with >10/ha >25cm dbh trees, Silver-haired Bats prefer forests with 21 snags/ha	**Studies Confirm:** confirmed use by >10 Big Brown Bats **or** >5 adult female Silver-haired Bats **Area of SWH Defined As:** entire woodland/forest ELC **or** Ecoelement containing maternity colonies	Woodland areas on or adjacent to the study area have limited potential to support this habitat function. See report for further discussion.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (January 2015)

[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Turtle Wintering Areas	Midland Painted Turtle **Special Concern**: Northern Map Turtle, Snapping Turtle	**Snapping and Midland Painted Turtles**: Community classes SW, MA, OA, SA, ELC Community Series FEO, BOO **Northern Map Turtle**: open water areas with current Not sewage lagoons or stormwater ponds	Water deep enough to not freeze, soft mud substrates; permanent water bodies, large wetlands, bogs or fens with adequate Dissolved Oxygen	**Studies Confirm:** 5 over-wintering Midland Painted Turtles, **or** 1 or more overwintering Northern Map Turtles or Snapping Turtles **Area of SWH Defined As:** ELC with overwintering turtles, if site is within a stream or river only the deep-water pool is protected	While wetlands with small pond features are present within the subject property, these feature are very limited in size, shallow, and are characterized by shallow mineral soils over bedrock. In general, these features are unlikely to support significant overwintering turtle habitat. No further assessment provided - not SWH.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (January 2015)

[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Reptile Hibernaculum	**Snakes**: Eastern Gartersnake, Northern Watersnake, Northern Red-bellied Snake, Northern Brownsnake, Smooth Green Snake, Northern Ring-necked Snake **Special Concern**: Five-lined Skink, Milksnake, Eastern Ribbonsnake	**Snakes:** any forest ecosite other than very wet ones; talus, rock barrens, crevice, cave, and alvar sites; rock piles or slopes, stone fences, crumbling foundations **Skink:** Community Series FOD, FOM and Ecosites FOC1, FOC3	**Snakes:** sites with access below the frost line, wetlands with hummocks **Skink:** mixed forests with rock outcrops providing cover rock overlaying granite bedrock with fissures	**Studies Confirm:** use by ≥5 individuals from one species **or** use by individuals from ≥2 species; congregation of ≥5 individuals from one species **or** individuals from ≥2 species near potential hibernacula; if SC species are present site is SWH; any active skink hibernaculum **Area of SWH Defined As:** feature containing hibernacula plus 30m radius	Potential hibernacula sites were not documented during on-site investigations. No further assessment provided - not SWH.
Colonially-nesting Bird Breeding Habitat (Bank and Cliff)	Cliff Swallow, Northern Rough-winged Swallow	Found in CUM1, CUT1, CUS1, BLO1, BLS1, BLT1, CLO1, CLS1, CLT1	Exposed banks, sandy hills, borrow pits, steep slopes, sand piles that are undisturbed or naturally eroding Does not include man-made structures or active aggregate pits	**Studies Confirm:** 1 or more nesting sites with ≥8 Cliff Swallow pairs **and/or** Rough-winged Swallow Pairs during the breeding season **Area of SWH Defined As:** colony and 50m radius from peripheral nests	The study area does not contain any features that may support this habitat function. No further assessment provided - not SWH.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (January 2015)

[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Colonially-nesting Bird Breeding Habitat (Tree/Shrubs)	Great Blue Heron, Black-crowned Night Heron, Great Egret, Green Heron	SWM2, SWM3, SWM5, SWM6, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7, FET1	Live or dead standing trees in wetlands, lakes, islands, peninsulas, may use shrubs or other emergent vegetation; most nests 11-15m from ground	**Studies Confirm:** ≥5 active Great Blue Heron or other listed species nests **Area of SWH Defined As:** colony plus 300m radius **or** extent of forest ecosite containing colony **or** any island <15ha with a colony	The study area does not contain any features that may support this habitat function. No further assessment provided - not SWH.
Colonially-nesting Bird Breeding Habitat (Ground)	Herring Gull, Great Black-backed Gull, Little Gull, Ring-billed Gull, Common Tern, Caspian Tern, Brewer's Blackbird	MAM1-6, MAS1-3, CUM, CUT, CUS **Brewer's Blackbird**: close to watercourses in open fields	**Gulls and Terns:** rocky islands or peninsulas in open water, marshy areas **Brewer's Blackbird:** near streams and irrigation ditches in farmland	**Studies Confirm:** >25 active nests of Herring Gulls or Ring-billed Gulls, >5 active nests of Common Terns, >2 active nests of Caspian Terns, ≥5 Brewer's Blackbird pairs, any active nesting colony of Little Gulls or Great Black-backed Gulls **Area of SWH Defined As:** colony plus 150m radius **or** extent of ecosites containing colony **or** any island <3ha	The study area does not contain any features that may support this habitat function. No further assessment provided - not SWH.
Migratory Butterfly Stopover Areas	Painted Lady, Red Admiral **Special Concern**: Monarch	One Community Series each from field (CUM, CUT, CUS) and forest (FOC, FOD, FOM, CUP)	Minimum 10ha combination of field and forest located within 5km of Lake Ontario	**Studies Confirm**: >3000 Monarch Use Days (days a site is used * the number of individuals), **or** >3000 Monarch Use Days with Painted Ladies or Red Admirals present **Area of SWH Defined As**: n/a	The study area is located outside of applicable distance from Lake Ontario shoreline. No further assessment provided - not SWH.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (January 2015)

[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Landbird Migratory Stopover Areas	All migratory songbirds and raptors	Community Series FOC, FOM, FOD, SWC, SWM, SWD	Woodlots > 10ha within 5km of Lake Ontario; significance increases with proximity to shoreline and size	**Studies Confirm**: use by > 200 birds/day with > 35 species, **and** at least 10 species recorded on 5 different survey days **Area of SWH Defined As**: n/a	The study area is located outside of applicable distance from Lake Ontario shoreline. No further assessment provided - not SWH.
Deer Yarding Areas	White-tailed Deer	Community Series FOM, FOC, SWM, SWC and Ecosites CUP2, CUP3, FOD3, CUT	**Stratum** I: coniferous forest with >60% canopy cover **Stratum II**: mixed or deciduous forest surrounding Stratum I	**Confirm Studies**: mapping by MNRF **Area of SWH Defined As**: n/a	The study area is not contained in a significant Deer Yarding Area as identified by the MNRF. No further assessment provided - not SWH.
Deer Winter Congregation Areas	White-tailed Deer	Community Series FOC, FOM, FOD, SWC, SWM, SWD, conifer plantations	Woodlots > 100ha, smaller woodlots can be SWH based on MNRF assessment	**Confirm Studies**: mapping by MNRF, all woodlots >100ha are significant **Area of SWH Defined As**: n/a	N/A - see Deer Yarding Area category above.
Rare Vegetation Communities					
Cliffs and Talus Slopes		Community Series TAO, CLO, TAS, CLS, TAT, CLT	Any cliff > 3m or talus slope	**Confirm Studies:** any ELC for cliffs or talus slopes **Area of SWH Defined As:** n/a	The study area does not contain any applicable ELC ecosites. No further assessment provided - not SWH.
Sand Barren		SBO1, SBS1, SBT1	Exposed sand, sparsely vegetated, <60% tree cover	**Confirm Studies:** confirmed ELC for Sand Barrens, <50% exotic vegetative cover **Area of SWH Defined As:** n/a	The study area does not contain any applicable ELC ecosites. No further assessment provided - not SWH.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (January 2015)

[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Alvar	**Indicator species**: Carex crawei, Panicum philadelphicum, Eleocharis compressa, Scutellaria parvula, Trichostema brachiatum	ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2	Level calcerous bedrock, rock pavement, overlain by thin veneer of soil, <60% tree cover	Confirm Studies: >0.5ha, at least 4 indicator species, <50% exotic vegetative cover, in good condition **Area of SWH Defined As**: n/a	The study area does not contain any applicable ELC ecosites. No further assessment provided - not SWH.
Old Growth Forest		Community Series FOD, FOC, FOM, SWD, SWC, SWM	Woodland ≥30ha with at least 10ha interior habitat with 100m edge buffer	**Studies Confirm**: dominant trees are >140 years old, no recognizable forestry activities **Area of SWH Defined As**: combined ecosites or ecoelements with old growth characteristics	The study area does not contain any climax forest/old growth tree cover. No further assessment provided - not SWH.
Savannah	See Appendix N of the Significant Wildlife Habitat Technical Guide.	TPS1, TPS2, TPW1, TPW2, CUS2	Tallgrass prairie with 25-60% tree cover, cannot be remnant site	**Studies Confirm**: ≥1 Savannah indicator species **and** <50% exotic vegetative cover **Area of SWH Defined As**: ecosite	The study area does not contain any applicable ELC ecosites. No further assessment provided - not SWH.
Tallgrass Prairie	See Appendix N of the Significant Wildlife Habitat Technical Guide.	TPO1, TPO2	Dominated by prairie grasses, <25% tree cover	**Studies Confirm**: ≥1 Prairie indicator species **Area of SWH Defined As**: ecosite	The study area does not contain any applicable ELC ecosites. No further assessment provided - not SWH.
Other Rare Vegetation Communities		Provincially Rare S1, S2, and S3 vegetation communities in Appendix M of the SWHTG	Beaches, Fens, Forest, Marsh, Barrens, Dunes, Swamps	**Studies Confirm**: confirmed ELC from Appendix M of the SWHTG **Area of SWH Defined As**: ELC	The study area does not contain any applicable ELC ecosites. No further assessment provided - not SWH.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (January 2015)

[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Specialized Habitats for Wildlife					
Waterfowl Nesting Area	American Black Duck, Northern Pintail, Northern Shoveler, Gadwall, Blue-winged Teal, Green-winged Teal, Wood Duck, Hooded Merganser, Mallard	Upland habitat adjacent to MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT1, SWT2, SWD1, SWD2, SWD3, SWD4	Area extending 120m from >0.5ha wetland, **or** a cluster of ≥3 <0.5ha wetlands, adjacent upland areas at least 120m wide, trees >40cm dbh with nesting cavities	**Studies Confirm: ≥**3 nesting pairs from listed species excluding Mallards, **or** ≥10 nested pairs including Mallards, **or** active nesting American Black Ducks **Area of SWH Defined As:** wetland and 120m boundary, boundary may vary to provide nesting habitat	While the study area does support wetlands, on-site investigations and breeding bird surveys did not document any potential breeding activity by waterfowl. No further assessment provided - not SWH.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Osprey **Special Concern**: Bald Eagle	Community Series FOD, FOM, FOC, SWD, SWM, SWC	Forested shorelines along lakes, ponds, rivers, or wetlands **Osprey**: nest at the top of tree **Eagle**: nest in notch of super canopy tree Does not include nests on man-made structures	**Studies Confirm:** one or more active nests in area, nest must be used annually, must be inactive ≥3 years to be non-significant **Area of SWH Defined As:** Osprey nest and 300m radius or contiguous woodland stand Bald Eagle nest and 400-800m radius plus perching and foraging habitat	The study area does not contain any features that may support this habitat function. No further assessment provided - not SWH.

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[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Woodland Raptor Nesting Habitat	Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Barred Owl, Broad-winged Hawk	All forested Ecosites, also SWC, SWM, SWD, CUP3	Natural or conifer plantation stands >30ha with >10ha of interior habitat with 200m edge buffer, stick nests found in conifer, deciduous, or mixed forests, Coopers Hawk nest on forest edges	**Studies Confirm:** 1 or more active nests from listed species **Area of SWH Defined As:** active Red-shouldered Hawk, Northern Goshawk nest and 400m radius or 28ha of suitable habitat Active Barred Owl nest and 200m radius Active Broad-winged Hawk, Coopers Hawk nest and 100m radius Active Sharp-shinned Hawk nest and 50m radius	The study area does not contain any features that may support this habitat function. No further assessment provided - not SWH.
Turtle Nesting Areas	Midland Painted Turtle **Special Concern**: Northern Map Turtle, Snapping Turtle	MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, BOO1, FEO1	Close to water with open, sunny areas containing sand and gravel turtles can dig in, does not include road shoulders	**Studies Confirm:** ≥5 nesting Midland Painted Turtles, **or** ≥1 nesting Northern Map Turtle or Snapping Turtle **Area of SWH Defined As:** area/areas with exposed mineral soils plus 30-100m radius, including travel routes from wetland to nesting area	Evidence of turtle nesting or areas of potential habitat not documented during on-site investigations. No further assessment provided - not SWH.
Seeps and Springs	Wild Turkey, Ruffed Grouse, Spruce Grouse, White-tailed Deer, Salamander spp.	Any forested ecosite near headwaters	Forested area with <25% meadow/field/pasture within headwaters of river or stream	**Studies Confirm: ≥**2 seeps/springs **Area of SWH Defined As:** area containing seeps/springs	Diffuse seepage areas were observed within the study area. See report for further discussion.

*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (January 2015)

[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Amphibian Breeding Habitat (Woodland)	Eastern Newt, Blue-spotted Salamander, Spotted Salamander, Gray Treefrog, Spring Peeper, Western Chorus Frog, Wood Frog	Community Series FOC, FOM, FOD, SWC, SWM, SWD	Wetland, pond, pool >500m^2 within 120m of a woodland	**Studies Confirm**: breeding by ≥1 listed newt/salamander species **or** ≥2 listed frog species with at least 20 adults or egg masses **or** ≥2 listed frog species with Call Level Codes of 3 **Area of SWH Defined As**: wetland plus 230m radius of woodland, including travel corridor	Multiple wetland ecosites are present within the study area, all encompassed within or adjacent to woodland ecosites. Based on limited data and habitat-based interpretation, it is possible that these features support significant amphibian breeding habitat. See report for further discussion.
Amphibian Breeding Habitat (Wetlands)	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	ELC Classes SW, MA, FE, BO, OA, SA	Wetlands >500m^2, bullfrogs require permanent waterbodies	**Studies Confirm**: breeding by ≥1 listed newt/salamander species **or** ≥2 frog/toad species with at least 20 adults or egg masses **or** ≥2 frog/toad species with Call Level Codes of 3 **Area of SWH Defined As**: ELC ecosite and shoreline are SWH	N/A - see category above.
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	Community Series FOC, FOM, FOD, SWC, SWM, SWD	Habitats where interior forest birds are breeding, typically forests >30ha and >60 years old; interior forest habitat is at least 200 m from forest edge habitat.	**Studies Confirm**: breeding pairs/nesting by ≥3 listed species, any site with breeding Cerulean Warblers or Canada Warblers **Area of SWH Defined As**: n/a	The study area does not contain any features that may support this habitat function. Sufficient number of indicator species not documented during targeted surveys. No interior woodland habitat present. No further assessment provided - not SWH.

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[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Habitats of Species of Conservation Concern					
Marsh Bird Breeding Habitat	American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Marsh Wren, Common Loon, Sandhill Crane, Green Heron, Trumpeter Swan **Special Concern**: Black Tern, Yellow Rail	MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, FEO1, BOO1 **Green Heron:** SW, MA, CUM1	Shallow water with emergent vegetation **Green Heron:** edge of sluggish streams, ponds, marshes sheltered by shrubs and trees	**Studies Confirm: ≥**5 nesting pairs of Sedge Wren or Marsh Wren **or** 1 pair of Sandhill Cranes, **or** breeding by ≥5 of the listed species, **or** ≥1 pairs of Trumpeter Swans, Black Terns, Green Herons, or Yellow Rails **Area of SWH Defined As:** area of ELC used for breeding	The study area does not contain any features that may support this habitat function. Indicator species not documented during targeted surveys. No further assessment provided - not SWH.
Open Country Bird Breeding Habitat	Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, Northern Harrier, Savannah Sparrow **Special Concern**: Short-eared Owl	CUM1, CUM2	Grassland areas >30ha, includes cultural fields and meadows, agricultural land not used for farming in last 5 years	**Studies Confirm:** nesting/breeding of ≥2 listed species **or** ≥1 breeding Short-eared Owls **Area of SWH Defined As:** contiguous grassland ELC	The study area does not contain any features that may support this habitat function. Indicator species not documented during targeted surveys. No further assessment provided - not SWH.
Shrub/Early Successional Bird Breeding Habitat	**Indicator Species**: Brown Thrasher, Clay-coloured Sparrow **Common Species**: Field Sparrow, Black-billed Cuckoo, Eastern Towhee, Willow Flycatcher **Special Concern**: Yellow-breasted Chat, Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2	Large fields >10ha succeeding to shrub and thicket, shrub thickets >10ha	**Studies Confirm:** nesting/breeding of ≥1 Indicated Species **and** at least 2 Common Species, **or** breeding Yellow-breasted Chat or Golden-winged Warbler **Area of SWH Defined As:** contiguous field/thicket ELC	The study area does not contain any features that may support this habitat function. Sufficient breeding evidence by indicator species not documented during targeted surveys. Field areas are of insufficient size to meet criteria. No further assessment provided - not SWH.

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[1]Shaded rows denote habitat categories that may be present within a subject property.

Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Terrestrial Crayfish	Chimney or Digger Crayfish, Devil or Meadow Crayfish	MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, MAS1, MAS2, MAS3, SWD, SWT, SWM, CUM1 with inclusions of meadow marsh or swamp	Wet meadow/shallow marsh edges	**Studies Confirm**: ≥1 individuals or burrows in suitable habitat **Area of SWH Defined As**: area of ELC with burrows	Evidence of terrestrial crayfish not documented during on-site investigations. No further assessment provided - not SWH.
Special Concern and Rare Wildlife Species	Species tracked by NHIC	n/a	ELC surrounding recorded occurrence	**Studies Confirm:** confirmation species is present **Area of SWH Defined As:** area of habitat to the finest ELC scale that protects habitat form and function	Either background databases contain existing records or site investigations indicate that the study area has the potential to support habitat for one or more special concern or rare species. See report for further discussion.
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	Any ecosite associated with water	Corridor linking summer and breeding habitat	**Studies Confirm:** confirmed Amphibian Breeding Habitat-Wetland, at least 15m of vegetation on both sides of waterway **or** up to 200m wide **Area of SWH Defined As:** corridor is part of buffer surrounding Amphibian Breeding Habitat- Wetland	NA - the study area supports potential amphibian breeding functions, but not within the 'wetland' category.

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[1]Shaded rows denote habitat categories that may be present within a subject property.

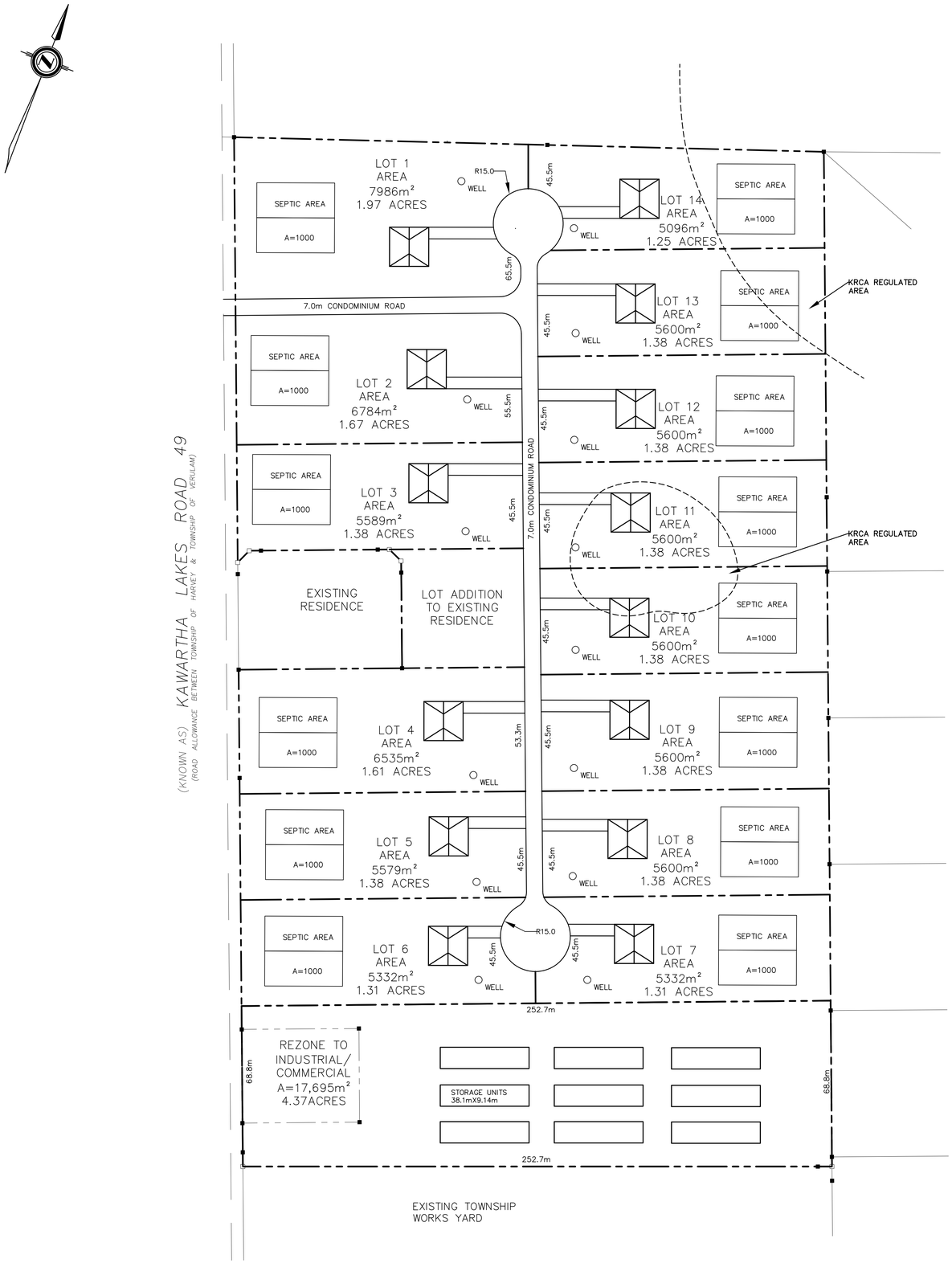
Ecoregion 6E[1]	Species	Candidate SWH Habitat - ELC Ecosites	Candidate Significant Wildlife Habitat - Habitat Criteria	Confirmed Significant Wildlife Habitat	Discussion
Deer Movement Corridors	White-tailed Deer	Any forested ecosite	Identified by MNRF, follow riparian areas, woodlots, ravines, or ridges	**Studies Confirm:** confirmed Deer Wintering Habitat **Area of SWH Defined As:** corridors at least 200m wide with gaps <20m, with 15m of vegetation on both sides of waterways	N/A
Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 6E					
6E-14 Mast Producing Areas	Black Bear	Community Series FOM, FOD	Woodland ecosites >30ha with mast-producing tree species (cherry, oak, beech)	**Studies Confirm**: woodlands >30ha with 50% composition of FOM1-1, FOM2-1, FOM3-1, FOD1-1, FOD1-2, FOD2-1, FOD2-1, FOD2-3, FOD2-4, FOD4-1, FOD5-2, FOD5-3, FOD5-7, FOD6-5 **Area of SWH Defined As**: n/a	N/A
6E-17 Lek	Sharp-tailed Grouse	CUM, CUT, CUS	Grassland >15ha adjacent to shrubland, grassland >30ha adjacent to deciduous woodland	**Studies Confirm**: confirmed courtship activities **Area of SWH Defined As**: field/meadow ecosites plus 200m radius	N/A

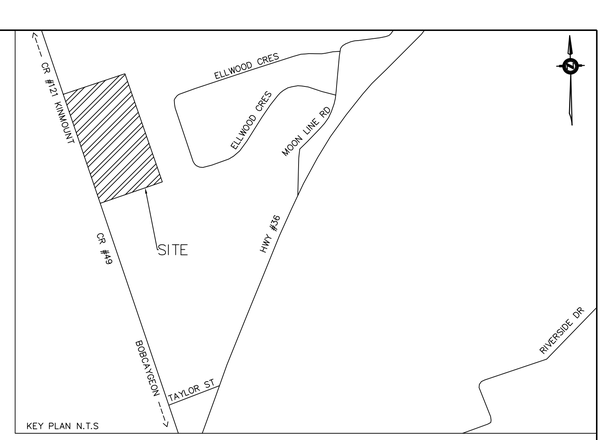
*as per Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (January 2015)

[1]Shaded rows denote habitat categories that may be present within a subject property.

Appendix 8. Site Plan

RIVERSTONE
ENVIRONMENTAL SOLUTIONS INC.





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PARTY CHIEF: SK | DRAWN BY: MSJ | CHECKED BY: IBW | PLOT DATE: AUG. 11/21
FILE NAME: A-027651-Rv4 copies available at LandSurveyRecords.com

Nº:	DATE	DESCRIPTION	BY

REVISIONS

PROJECT TITLE:

00 COUNTY ROAD 49, TRENT LAKES
COUNTY OF PETERBROUGH
ROLL# 154201000410603

DRAWING TITLE:

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DESIGNED BY: TD	
APPROVED BY: TD	DRAWING Nº: SP-1
DATE: NOV 2022	SCALE: 1:1000

LAST REVISED NOV 17-2022