



December 29, 2022

Mr. Paolo Sacilotto
Project Manager – Planning
Watersand Construction Ltd.
DG Group
20 Floral Parkway, Suite 300
Concord, Ontario L4K 4R1

Re: Watersand Construction Ltd. Phase 2 North Development, 259 Salem Road, City of Barrie – Environmental Impact Study in Support of Draft Plan of Subdivision; Our File 0922

Dear Paolo:

Michalski Nielsen Associates Limited (MNAL), working in conjunction with Cunningham Environmental Associates (CEA), is pleased to provide you with our Environmental Impact Study (EIS) in relation to the Draft Plan of Subdivision for Watersand Construction Ltd.'s (Watersand's) Phase 2 North development, located at 259 Salem Road, City of Barrie (**Figure 1**). These lands are within the approved SSP (SSP), and the ownership has been a participating landowner throughout the Secondary Plan process.

1.0 INTRODUCTION

1.1 Background

The Watersand Construction Ltd. Phase 2 North property is located at 259 Salem Road in the City of Barrie (**Figure 1**). The lands which are specifically subject to this report include the north half of Lot 3, Concession 10, and parts of the north and south half of Lot 4, Concession 10, and are bound by:

- Salem Road to the north, beyond which are lands that contain a combination of agricultural, plantation, woodland, anthropogenic, cultural thicket and cultural meadow, but which are within the SSP and will include areas of future development;
- wetlands forming part of the Natural Heritage System, together with some woodland and agricultural lands to the east, beyond which is Veterans Drive. Note that the lands to the east are also within the SSP, with a small portion of these being areas which will support future development;

16 Robert Boyer Lane, Bracebridge, Ontario P1L 1R9
(705) 645-1413 www.mnal.ca E-mail: info@mnal.ca

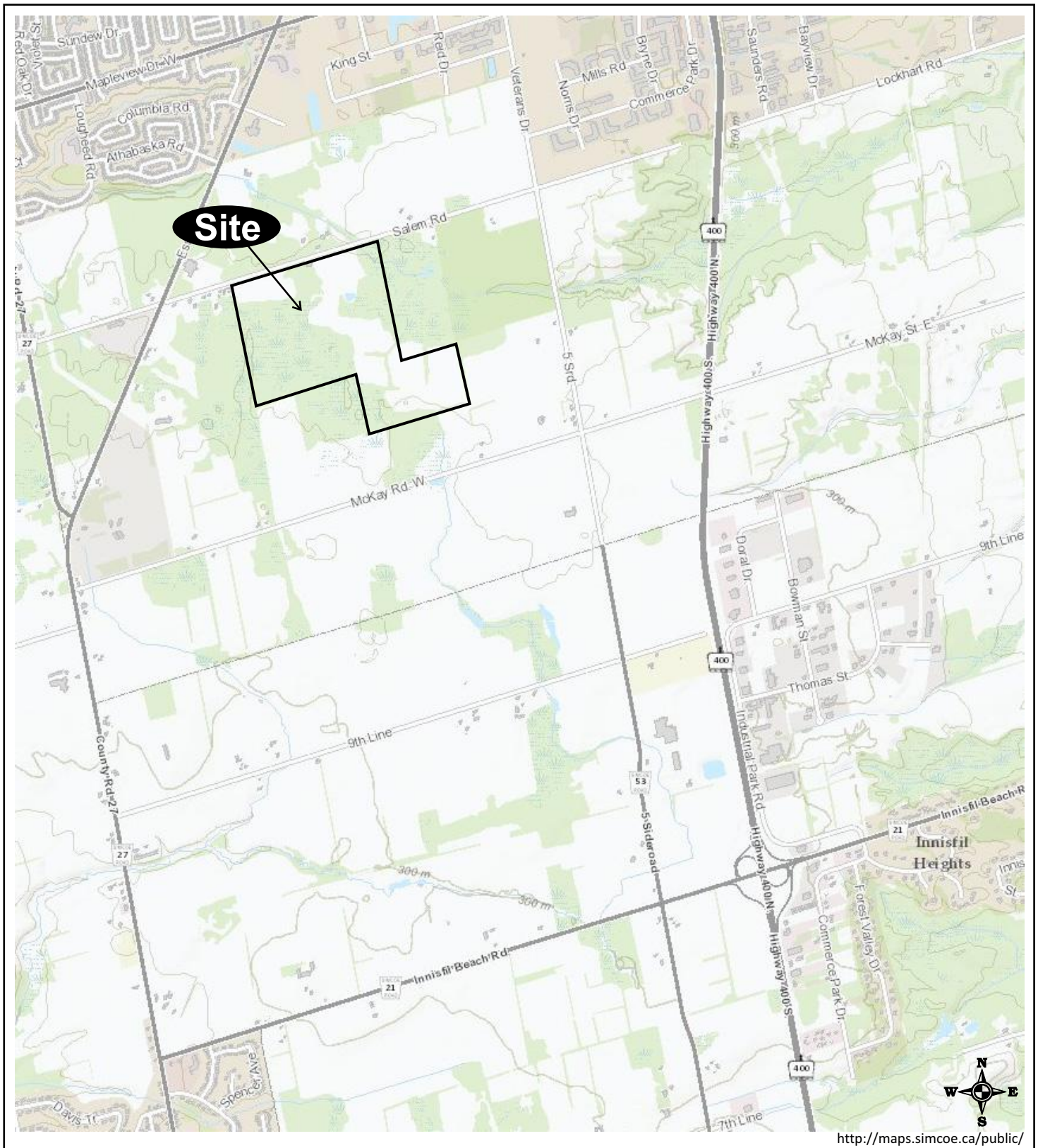


Figure 1. Study Site Location

Watersand Construction Inc.
Salem Secondary Plan Area
Draft Plan of Residential Subdivision
Part of Lots 2 and 3
Part of the North Half of Lot 4
Part of the South Half of Lot 4
Concession 10
(Geographic Township of Innisfil)
City of Barrie, County of Simcoe



Property Boundary

Scale 1:NTS

Michalski Nielsen
ASSOCIATES LIMITED

In Association With

Cunningham Environmental Associates

- a combination of woodland and agricultural lands to the south, beyond which is McKay Road, with those lands also being within the SSP and including future residential lands forming part of the overall Watersand Subdivision lands;
- wetlands and woodlands to the west, beyond which is Essa Road, with there also being a number of larger, developed single family lots extending south from Salem Road. These lands are also within the SSP.

This EIS has been prepared in support of the Plan of Subdivision shown in **Figure 2**, consisting of a small block of residential development in the northwest corner of the north half of Lot 3, Concession 10, and a band of development extending south from Salem Road at the boundary between Lots 3 and 4, Concession 10, all as illustrated in the Draft Plan of Subdivision shown in **Figure 2**.

Note that the lands to the west from part of the north half of Lot 2, Concession 10, a large portion of which is within the Draft Plan of Subdivision which this EIS has been prepared in support of. However, the great majority of these lands are part of the protected Natural Heritage System within the SSP. There is a parcel of land (Block 348) fronting Essa Road which is designated as a mixed use node within the SSP; that block is subject to site plan approval, a process which will require the submission of supporting studies, including an EIS. It is not the intent of the present report to address future development within that block.

The lands within the entirety of the Draft Plan of Subdivision cover 114.68 hectares (283 acres). The Phase 2 North lands lie primarily within the jurisdictional boundary of the Nottawasaga Valley Conservation Authority (NVCA), with much of the on site and abutting features regulated by NVCA under Ontario Regulation 172/06 (Province of Ontario 2006). The subject lands occur along the eastern limits of the area within NVCA's jurisdiction, with small portions of the subject lands being within the limits of Lake Simcoe Region Conservation Authority (LSRCA), portions of which are regulated by that authority under regulation 179/06 (Province of Ontario 2006). However, as the great majority of these lands are within the jurisdiction of NVCA, it is our understanding that these regulatory authorities have agreed that this application will be reviewed by NVCA, with that agency deferring to LSRCA as required. As part of the Secondary Plan process it was NVCA that were involved in the field staking of the natural heritage features over the entirety of the subject lands.

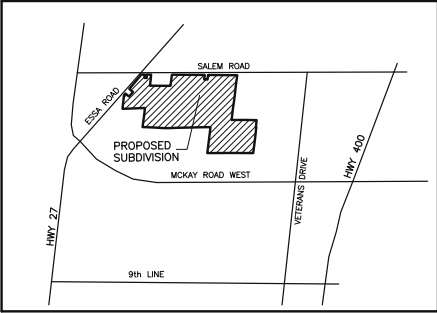
The subject lands lie within the SSP, where they are identified as Parcel 30. The SSP was approved through Amendment No. 38 to the City of Barrie Official Plan (City of Barrie 2014). The SSP lands are bounded by Salem Road and Lockhart Road to the north, Huronia Road to the east, County Road 27 to the west and by a mid-concession line to the south.

Our office, working in conjunction with CEA, has been involved in work on your company's behalf in the SSP area for many years. As a participating landowner, the lands described as 259 Salem Road have been extensively examined in the past from a natural features perspective, with that work having included:

DRAFT PLAN OF SUBDIVISION
PART OF LOTS 2 AND 3
PART OF THE NORTH HALF OF LOT 4
PART OF THE SOUTH HALF OF LOT 4
CONCESSION 10
(GEOGRAPHIC TOWNSHIP OF INNISFIL)
CITY OF BARRIE
COUNTY OF SIMCOE

SCALE 1:2500

DRAFT PLAN T-



KEY PLAN

SECTION 51, PLANNING ACT,
ADDITIONAL INFORMATION

- A. AS SHOWN ON DRAFT PLAN
- B. AS SHOWN ON DRAFT PLAN
- C. AS SHOWN ON DRAFT PLAN
- D. SEE SCHEDULE OF LAND USE
- E. AS SHOWN ON DRAFT PLAN
- F. AS SHOWN ON DRAFT PLAN
- G. AS SHOWN ON DRAFT PLAN
- H. MUNICIPAL PIPED WATER AVAILABLE AT TIME OF DEVELOPMENT
- I. CLAY-LOAM
- J. AS SHOWN ON DRAFT PLAN
- K. SANITARY AND STORM SEWERS, GARBAGE COLLECTION, FIRE PROTECTION
- L. AS SHOWN ON DRAFT PLAN

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AS SHOWN ON THIS PLAN, AND THEIR RELATIONSHIP TO THE ADJACENT LAND ARE ACCURATELY AND CORRECTLY SHOWN.

DATE DECEMBER 15, 2022



GARY B. VANDERVEEN
ONTARIO LAND SURVEYOR

HOLDING JONES VANDERVEEN INC.

OWNER'S CERTIFICATE

I AUTHORIZE KLM PLANNING PARTNERS INC. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE CITY OF BARRIE FOR APPROVAL.

OWNER

WORMWOOD DEVELOPMENTS INC.

C/O

DG GROUP
30 FLORAL PARKWAY
SUITE 300
CONCORD, ONTARIO
L4K 4R1

ROBERT DE GASPERIS

SCHEDULE OF LAND USE

TOTAL AREA OF LAND = 114.681±Ha. (283.382±Acs.)

LOTS FOR SINGLE FAMILY DWELLINGS	BLOCKS	LOTS	UNITS	±Ha.	±Acs.
LOTS 130-131, 135-146, 150 and 164-179 MIN. LOT FRONTAGE=15.3m. MIN. AREA=420.75sq.m.		31	31	1.848	4.566
LOTS 1-5, 36, 45-48, 56, 60-72, 75-83, 92-94, 100-104, 114-115, 117-125, 127-159, 132, 147-149, 151-154, 160-163, 180-184, 188-189, 191-196, 200-202, 204-205, 207-209, 227-235 and 312 MIN. LOT FRONTAGE=13.7m. MIN. AREA=376.75sq.m. plus BLOCKS 327-330 and 332-334		98	98	4.640	11.466
LOTS 6-35, 37-44, 49-55, 57-59, 73-74, 84-91, 95-99, 105-113, 116, 126, 133-134, 158-159, 185-187, 190, 197-199, 203, 206, 210-226, 236-240, 246-248, 259-261, 266-268, 274, 276-278, 285-287, 295-296, 311 and 313-326 MIN. LOT FRONTAGE=11.6m. MIN. AREA=319.0sq.m. plus BLOCKS 335-347	7	142	142	6.559	16.209
LOTS 155-157, 241-243, 249-253, 258, 263-265, 271-273, 279-281, 283-284, 288-290, 293-294, 297-298 and 303-310 MIN. LOT FRONTAGE=10.0m. MIN. AREA=275.0sq.m.	3	38	38	1.224	3.025
STREET TOWNHOUSES BLOCKS 244-245, 254-257, 262, 269-270, 275, 282, 291-292, 299-302 and 331 MIN. UNIT FRONTAGE=6.3m.	13		6.5 *		
BLOCKS 348-349	2	361 *	3.006		7.427
SUBTOTAL	40	309	794.5 *	19.365	47.852
BLOCK 350 - PARK	1		1.208		2.985
BLOCK 351 - S.W.M.	1		1.279		3.160
BLOCK 352 - UNDERGROUND STORAGE TANK	1		0.345		0.853
BLOCKS 353-354 - NATURAL HERITAGE SYSTEM	2		84.325		208.372
BLOCKS 355-360 - OPEN SPACE	6		0.224		0.553
BLOCKS 361-365 - ROAD WIDENING	5		0.751		1.856
BLOCKS 366-372 - 0.3m. RESERVE	7		0.005		0.012
STREETS			7.179		17.739

TOTAL	63	309	794.5*	114.681	283.382
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NOTE - ELEVATIONS RELATED TO CANADIAN GEODETIC DATUM

NOTE - @ SPECIAL DESIGN UNITS

Figure 2. Draft Plan of Subdivision

PROJECT No. P-3158
SCALE 1:2500 DEC 16, 2022
(3158DE55) X-REF: (3158MAS2 & 3158TOPO)
KLM DWG. No. - 22:3
PLANNING PARTNERS INC. 64 JARDIN DRIVE - UNIT 1B, CONCORD, ONTARIO L4K 3P3
TEL: (905) 669-4055 FAX: (905) 669-0097 design@klmplanning.com
Planning • Design • Development

- the Natural Heritage Characteristics Report for the City of Barrie's Annexed Lands, prepared for the City of Barrie in April 2012 by NRSI and Dougan & Associates, providing a complete characterization of the natural heritage resources of what is later referenced as the SSP area;
- the City of Barrie Annexed Lands Natural Heritage System Report, prepared for the City of Barrie in September 2012 by Natural Resource Solutions Inc., which flowed out of the Natural Heritage Characteristics Report. This report identified natural heritage features, including Core Areas and Linkages, within which is later referenced as the SSP area;
- the creation of the Salem Secondary Plan (Amendment No. 38 to the City of Barrie Official Plan) in June 2014, which identified a natural heritage system for those lands and established the principles by which these lands could be developed in a manner compatible with the protection of the natural heritage system components;
- field staking in 2014 of the natural heritage system that were identified for protection in the Secondary Plan. This staking exercise occurred on the lands of participating landowners and was undertaken by NVCA, in conjunction with landowner representatives, with the identified boundary limits subsequently being surveyed by an Ontario Land Surveyor (OLS);
- the establishment of natural heritage system buffer requirements specific to the SSP, which are as follows:
 - 30 m from the edge of wetlands and watercourses in the Natural Core Area;
 - 30 m from the dripline of significant woodland features in the Lake Simcoe watershed;
 - 10 m from the dripline of woodland features in the Nottawasaga River watershed;
 - 5 m where the boundary of the Natural Core Area is an existing meadow or thicket.
- the plotting of such boundaries on mapping of the lands of participating landowners, where the boundaries of the natural heritage system had been staked and surveyed;
- the preparation of a Terms of Reference for Subwatershed Impact Studies (SIS Terms of Reference; final version on August 27, 2015), describing workplan requirements on individual properties in support of Draft Plan submissions. That Terms of Reference specifically acknowledged that the natural heritage system has generally been defined through previous studies and natural heritage system policies in support of secondary plan approval; and
- the completion of a Subwatershed Impact Study for the Salem Annexed Lands, which includes the subject property, by Schaeffers and Associates Limited (Schaeffers) and others in 2017, which established general development patterns, including locations of stormwater management facilities, in keeping with the requirements of protecting the NHS.

The property and its cultural and natural heritage features were reviewed in 2014 by MNAL, in conjunction with CEA. The main purpose of the review undertaken in 2014 was to confirm the extent of the on site and abutting City of Barrie Natural Heritage System (NHS) features, and to stake those boundaries with NVCA staff and an Ontario Land Surveyor (OLS). The review mandate did not include confirming or refining the NHS Ecological Land Classification (ELC) characterizations and labelling, nor did it include any botanical inventories of the feature's inherent plant species, the assessment of Species at Risk (SAR) potential, or the assessment of Significant Wildlife Habitat (SWH) potential. Based on the results of the OLS findings, the SSP mandated buffers were applied to the NHS features to determine the "Limit of Development" on this parcel. The results of the NHS features staking exercise and application of the mandated buffers is contained in the Subwatershed Impact Study Report, Salem Annexed Lands, City of Barrie (Schaeffers 2017).

1.2 Purpose of this Environmental Impact Study

The Conformity Review of the Zoning By-law Amendment and Draft Plan of Subdivision for this property that was completed by the City of Barrie (April 11, 2022) identified the need for an updated, Site-Specific Environmental Impact Study for those lands. The purpose of that Environmental Impact Study is two-fold:

- update the ecological characteristics of these lands in order to confirm the appropriateness of established development limits; and
- to confirm that the detailed design of proposed development, including its layout, all aspects of site servicing, and intended construction mitigation measures, are consistent with the requirements to ensure long-term protection of the NHS.

With respect to the former, the ecological update is necessary to confirm that the boundaries of the NHS remains accurate, that the protection of SAR and their habitats are appropriately addressed by the protection of those areas that form part of the NHS (i.e., that there is no requirement to protect additional lands in order to address the requirements of the *ESA*), that buffer dimensions specific to those portions of the NHS within the subject lands are sufficient to protect SAR, and that the identified NHS and associated buffers are appropriate to protect SWH.

Work that has been completed to date in 2022 in support of this EIS is described in **Table 1**.

1.3 Proposed Development Plan

Proposed development of the Watersand Construction Ltd. Phase 2 North lands recognize and adhere to the Natural Heritage System (NHS) defined by the City of Barrie (NRSI *et al.* 2012, NRSI 2012), with the land uses established and approved through the SSP (City of Barrie 2014). The Draft Plan of Subdivision is shown on **Figure 2**. As earlier noted, this EIS addresses the residential development shown in Lots 3 and 4, Concession 10; the mixed use node within Lot 2, Concession 10 (Block 348) will be subject to a separate planning process, with a requirement for supporting studies that include an EIS, as part of the required Site Plan Approvals process for those lands.

Table 1. Summary of Field Investigations

Date	Field Investigation(s)	Weather Conditions
April 11, 2022	Amphibian Breeding Survey 1	8° C, 90% cloud cover, 0 km/h wind speed
May 11, 2022	Amphibian Breeding Survey 2	24° C, 25% cloud cover, 5 km/h wind speed
May 21, 2022	Breeding Bird Survey 1	15° C, 60% cloud cover, 4 km/hr wind speed
May 24, 2022	Vegetation Community Boundaries and Floristics	16° C, 50% cloud cover, SE 18 km/h wind speed, light drizzle
June 11, 2022	Breeding Bird Survey 2	12° C, 90% cloud cover, 11 km/hr wind speed
June 16, 2022	Amphibian Breeding Survey 3, Nightjar Survey	26° C, 70% cloud cover, 14 km/h wind speed (full moon cycle)
July 1, 2022	Breeding Bird Survey 3	20° C, 100% cloud cover, 0 km/hr wind speed
July 7, 2022	Butternut Health Assessment	25° C, 60% cloud cover, 4 km/h wind speed
July 7, 2022	Vegetation Community Boundaries and Floristics	21° C, 10% cloud cover, SW 4 km/h wind speed, no precipitation
July 13, 2022	Nightjar Survey	16° C, 0% cloud cover, 6 km/hr wind speed (full moon)
July 14, 2022	Butternut Health Assessment	20° C, 0% cloud cover, 8 km/hr wind speed
September 5, 2022	Vegetation Community Boundaries and Floristics	18° C, sunny with 0% cloud cover
September 28, 2022	Vegetation Community Boundaries and Floristics	11° C, 90% cloud cover, NW 19 km/hr wind speed, no precipitation
October 23, 2022	Vegetation Community Boundaries and Floristics	13° C, 25% cloud cover, SE 11 km/hr wind speed, no precipitation
October 25, 2022	Vegetation Community Boundaries and Floristics	14° C, 70% cloud cover, SE 9 km/hr wind speed, no precipitation
All Dates	Incidental Wildlife Observations	As above

The DG Group, along with their planning consultant KLM Planning Partners Inc. (KLM), have been working towards the creation of a draft Plan of Subdivision to create both residential lots and residential/mixed-use blocks, supported by additional technical work, including functional servicing and civil design completed by Schaeffers and by additional ecological work completed by MNAL and CEA.

1.4 Acknowledgements

This report has been prepared with considerable input from Dave Cunningham, CEA, who has been involved on this project for a number of years and completed the vegetation community assessment work contained within this report. Mr. Cunningham also provided valuable input on the planning history associated with both the subject property and the broader SSP area.

Ecology staff from Palmer have also provided extensive input to this project on matters relating primarily to the targeted wildlife surveys, Species at Risk assessment and Significant Wildlife Habitat assessment.

2.0 METHODOLOGY

2.1 Collection and Review of Background Information

Background information germane to the Watersand Construction Ltd. Phase 2 – Stage 1 property and abutting lands was collected and reviewed (Schaeffers & Associates Ltd *et al.* 2017). Prior to, during and after the site reconnaissance and inventories undertaken in 2014 and updated in 2022, the following data sources and published reports were collected and reviewed:

- **Life Science Areas of Natural and Scientific Interest in Site District 6E-8 – A Review and Assessment of Significant Natural Areas in Site District 6E-8** (Hanna 1984);
- **Natural Heritage Resources of Ontario: Bibliography of Life Science Areas of Natural and Scientific Interest in Ecological Site Regions 6E and 7E, Southern Ontario** (Riley *et al.* 1997);
- **Environmental Evaluation Watersand Property, Town of Innisfil** (Michalski Nielsen Associates Limited 2005);
- **City of Barrie Annexed Lands Natural Characterization Report** (Natural Resource Solutions Inc. *et al.* 2012);
- **City of Barrie Annexed Lands Natural Heritage Evaluation** (Natural Resource Solutions Inc. 2012);
- **Amendment No. 38 to the City of Barrie Official Plan SSP** (City of Barrie 2014);
- **Terms of Reference for Subwatershed Impact Studies – Barrie Annexed Lands (OPA 38 SSP & OPA 39 Hewitt's Secondary Plan** (Schaeffers & Associates Ltd. 2015);

- **Subwatershed Impact Study Report - Salem Annexed Lands, City of Barrie** (Schaeffers & Associates Ltd. 2017);
- **The City of Barrie Official Plan (City of Barrie 2018);**
- **Simcoe County Interactive County Maps (GIS) Orthorectified Coloured Orthophotographs** (County of Simcoe 1989 to 2022); and
- **Google Earth Pro Orthorectified Coloured Orthophotographs** (Google Earth Pro July 20, 2009 to October 20, 2021);

In addition to the reports listed above, various databases were searched for on site and off-site flora and fauna records. These websites and databases included the following:

- **Ontario Breeding Bird Atlas 1981-1985 and 2001-2005** (Bird Studies Canada *et al.* 2006);
- **Ministry of Natural Resources and Forestry – Midhurst District Office Information Request Form** (Midhurst District MNRF 2022a)
- **Simcoe County GIS Biophysical and Natural Environment Overlays** (County of Simcoe 2022b);
- **Natural Heritage Information Centre (NHIC) Internet Database/Biodiversity Explorer** (NHIC 2022); and,
- **Land Information Ontario Make-A-Map** (LIO 2022)

Background information was also garnered to assess the potential for Species at Risk (SAR) and/or Candidate Significant Wildlife Habitat (SWH), based on either species presence and/or habitat types determined from the flora inventories.

In addition to the data sources listed-above, various consultant team reports, tables, draft plans, figures and drawings were reviewed prior to and during preparation of this Scoped EIS, and is inclusive of the following:

- **Geotechnical Investigation (Final Report), Proposed Residential Subdivision Watersand North Phase II** (EXP Services Inc. 2022a);
- **Conformity Review Planning Comments – Zoning By-law Amendment & Draft Plan of Subdivision and Mixed Use Block** (City of Barrie 2022b);
- **Conformity Review – Zoning By-law Amendment & Draft Plan of Subdivision, 259 Salem Road, SSP Area, City of Barrie. Applicant – Watersand Construction Limited c/o DG Group** (City of Barrie 2022a);

- **Hydrogeological Investigation and Water Balance Assessment, Watersand North Phase II Sub-Division, 259 Salem Road, Barrie, Ontario** (EXP Services Inc. 2022b);
- **Functional Servicing Report – Watersand Construction c/o DG Group Phase 2 North SSP Proposed Residential Subdivision Phase 2 North, City of Barrie** (Schaeffers & Associates Ltd. 2022a);
- **Watersand Residential Subdivision Phase 2 SSP Area – Preliminary Grading and Servicing Plan GRSS-1** (Schaeffers & Associates Ltd. 2022a);
- **Watersand Residential Subdivision Phase 2 SSP Area – Preliminary Grading and Servicing Plan GRSS-2** (Schaeffers & Associates Ltd. 2022b);
- **Watersand Residential Subdivision Phase 2 SSP Area – Preliminary Grading and Servicing Plan GRSS-3** (Schaeffers & Associates Ltd. 2022c);
- **Draft Plan of Subdivision, Part of Lots 2 and 3, Part of the North Half of Lot 4, Part of the South Half of Lot 4, Concession 10 (Geographic Township of Innisfil), City of Barrie, County of Simcoe** (KLM Planning Partners Inc. 2022a); and
- **Planning Justification Report (Draft), Draft Plan of Subdivision & Zoning By-Law Amendment, Watersand Construction Inc. 259 Salem Road, City of Barrie, Simcoe** (KLM Planning Partners Inc. 2022b).

2.2 Vegetation Communities & Floristics

As outlined in **Section 1**, the NHS features were defined by the City of Barrie through studies undertaken by Natural Resource Solutions Inc. – NRSI (2012) and NRSI and Dougan & Associates (2012). MNAL, in conjunction with CEA, reviewed the extent of the NHS features and other non-NHS features on the property in 2014, with additional confirmation undertaken in 2022. Some adjustments have been undertaken in terms of the characterization of the NHS and non-NHS features, using the updated Ministry of Natural Resources and Forestry (MNRF) Ecological Land Classification (ELC) codes (Lee 2008). In 2014, no botanical inventories were conducted in the NHS and the non-NHS features. Botanical inventories were conducted in the spring, summer and early fall of 2022 to characterize the NHS and other non-NHS features in the proposed development area.

As per the SPP area policies, the NHS features includes buffers (the greater thereof), defined as within 10 m of the dripline of a wooded feature, 30 m from the centre line of creek, 30 m from a wetland feature edge, or 5 m from a meadow or thicket edge. **Figure 3** shows the extent of the NHS and non-NHS features on the property, along with the appropriate buffers on each. The Ontario Land Survey (OLS) staking exercise to confirm the NHS and non-NHS boundaries and agreement on the application of the SPP policy buffers was undertaken in 2014 with NVCA staff and reviewed and approved in 2014.

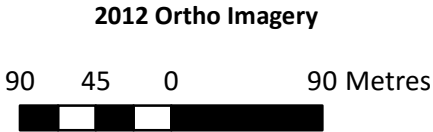


Parcel 30
Wormwood
Developments Inc.
259 Salem Road

Staked and Reviewed
By NVCA / LSRCA
2014

- Limit of Natural Heritage Feature
- Buffer
- Watershed Boundary between Lake Simcoe Region Conservation Authority and Nottawasaga Valley Conservation Authority
- AGR-A** Vegetation Communities

Figure 3. Vegetation Communities - ELCs



Map Source:			
Project Name:	Barrie Properties		
Project Number:	3714		
Date:	10-Dec-2014		
Created By:	K.L.F.		
Scale:	1:4,500		
NO.	DATE DD.MM.YY	REVISIONS	BY
1	11/09/15	Draft NHS Limits and Buffer	JT
2	19/11/15	Finalize Drawing	JT
3	30/08/16	Vegetation Communities	JT
4			

Based on past agreement with the City of Barrie and the NVCA, the identification, mapping and characterization of the vegetation communities on all participant landowners in the SSP would be founded on the City of Barrie Annexed Lands Natural Heritage Characterization Report (Natural Resource Solutions Inc. *et al.* 2012) and the City of Barrie Annexed Lands Natural Heritage System Report (Natural Resource Solutions Inc. 2012). As the Watersand Construction Ltd (Parcel 30) is a participant landowner, the basis for the vegetation community characterizations was established through the SIS field inventories undertaken on various dates (spring, summer and fall) in 2014 and 2015. Additional data for the identification, characterization confirmation, delineation and inherent species content of each NHS and non-NHS feature were the result of field work conducted for this EIS on May 24, July 7, September 5 and 28, and October 23 and 25, 2022, and supplemented with the field work undertaken in 2014 and 2015. Conditions on these field survey dates are described in **Table 1**.

The NHS and non-NHS characterization and mapping of the vegetation communities were classified in 2012 according to their Ecosite landscape unit community type, following the Ecological Land Classification (ELC) format outlined in **Ecological Land Classification for Southern Ontario: First Approximation and Its Application** (Lee *et al* 1998). CEA has applied the updated ELC codes, with variations where warranted, and as contained in the **Southern Ontario Ecological Land Classification – Vegetation Type List** (Lee 2008). Further characterization, delineation and significance of the vegetation communities was refined, where warranted, based on the **Natural Heritage Resources of Ontario: Vegetation Communities of Southern Ontario** (Bakowsky 1997).

As defined by the MNRF, an Ecosite, “is a mappable landscape unit defined by a relatively uniform parent material, soil and hydrology, and consequently supports a consistently recurring formation of plant species which develop over time (vegetation chronosequence).” Within each ecosite landscape unit, there are a variety of vegetation types. A vegetation type, “is a part of an ecosite, and represents a specific assemblage of species which generally occur in a site with a more uniform parent material, soils and hydrology, and a more specific stage within a chronosequence.”

The classification of the on site and abutting vegetation communities was characterized based on species composition and physiognomic characteristics. The nomenclature for the flora observed is consistent with and relied on the following authorities:

- Lycopodiaceae to Aspleniaceae. Cody, W. J., and D. F. Britton. 1989. **Fern and Fern Allies of Canada**. Publication 1829/E, Agriculture Canada, Research Branch, Ottawa.
- Taxaceae to Orchidaceae – Voss, E. G. 1972. **Michigan Flora. Part 1: Gymnosperms and Monocots**. Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 55.
- Saururaceae to Cornaceae – Voss, E. G. 1985. **Michigan Flora. Part 2: Dicots**. Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 59.
- Pyrolaceae to Compositae – Voss, E. G. 1996. **Michigan Flora. Part 3: Dicots**. Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 61.

- Newmaster, S. G., A. Lehela, P. W. C. Uhlig, S. McMurray, M. J. Oldham, and Ontario Forest Research Institute. 1998. **Ontario Plant List**. FRI Paper No. 123.
- Bradley, D. J. 2013. **Southern Ontario Vascular Plant Species List**. 3rd Edition. Science & Information Branch Southern Science and Information Section. Ontario Ministry of Natural Resources, Peterborough, Ontario. SIB SSI SR-03.

The rarity or significance for vegetation community types and inherent floristics (vascular plants) in each NHS and non-NHS feature was determined from standard status lists, published literature and the NHIC web-site database (NHIC 2022). Sources for flora included Bakowsky (1997), Environment and Climate Change Canada (2022), Committee on the Status of Endangered Wildlife in Canada – COSEWIC (2022), Province of Ontario (2007), Ministry of Natural Resources and Forestry (2022), Oldham and Brinker (2009), Riley *et al.* (1989), and Leslie (2018). Rare plant species on a federal level are listed in the *Species at Risk Act (SARA, 2002)*. On a provincial level, the Species at Risk in Ontario (SARO) list includes those species regulated under the *ESA, 2007*, as amended from time to time. The determination for plant species rarity consisted of a straightforward comparison of the plant species recorded on-site with those listed in these source references.

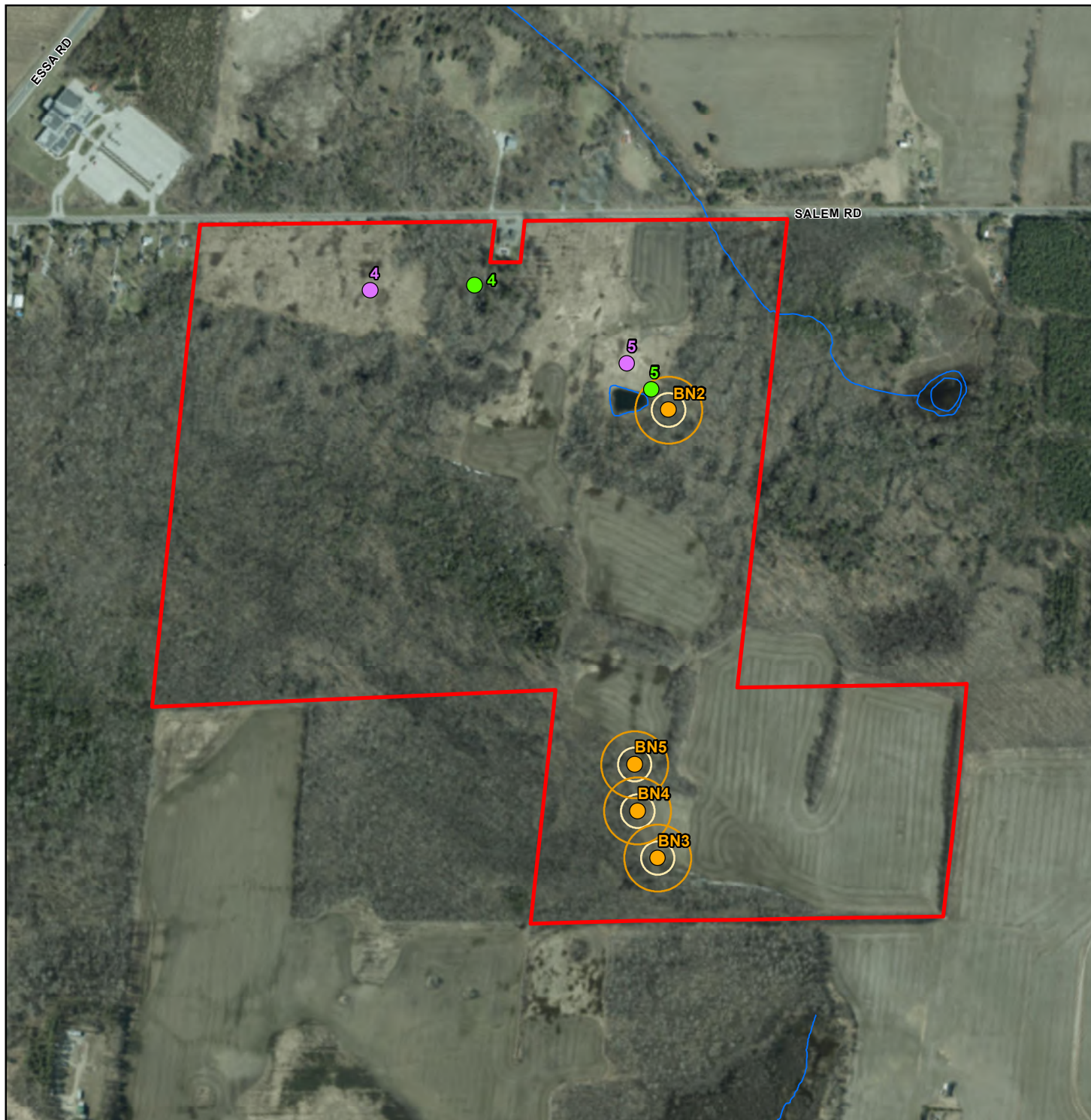
2.2 Amphibian Breeding Survey

Breeding amphibian surveys were conducted on April 11, May 11 and June 16, 2022 in accordance with standard field protocols (Gartshore, et al., 2004; Bird Studies Canada, 2009). Survey locations are shown on **Figure 4** and were selected to ensure all areas potentially providing amphibian breeding habitat were evaluated. Species were identified by call, and an abundance code for each species heard calling was assessed by the following the Amphibian Monitoring protocol:

- Code 0: No calls heard.
- Code 1: Calls not overlapping or simultaneous, number of individual frogs can be counted.
- Code 2: Calls overlapping or simultaneous, number of individuals can still be distinguished, number of individual frogs cannot be counted, but a reliable estimate of numbers can be made based on location and call voices.
- Code 3: Full chorus, calls simultaneous and overlapping, numbers of calling males cannot be reasonably counted or estimated.

2.3 Breeding Bird Surveys

Three breeding bird surveys were conducted on the site in general accordance with the Ontario Breeding Bird Atlas protocols (Bird Studies Canada, 2001). These surveys were undertaken within the peak breeding season for most bird species; the first survey was conducted on May 21, 2022, with the second survey conducted on June 11, 2022 and the third conducted on July 1, 2022. The surveys were carried out between 5:00 a.m. and 10:00 a.m. to coincide with the dawn chorus. The surveyor recorded all bird species seen



LEGEND - Butternut (Category 1 - Non-Retainable) ¹ - Amphibian Survey Station ¹ - Nightjar Survey Station ¹ - Minimum Habitat Protection (25 m) - General Habitat Protection (50 m) - Watercourse ² - Subject Property 1 - Palmer, 2022 2 - Ontario Hydro Network (OHN) Key Map 0 25 50 100 150 200 250 METRE SCALE North American Datum 1983 Universal Transverse Mercator Projection Zone 17 Scale: 1:8,500 Page Size: Letter (8.5 x 11 inches) Drawn: SM Checked: RA Date: Oct 11, 2022 Source Notes: Base imagery (2018) provided by Simcoe County open GIS services. NORTH	
CLIENT	Michalski Nielsen ASSOCIATES LIMITED
PROJECT	McKay and Salem (Barrie) - Environmental Review
TITLE	2022 Field Surveys (259 Salem Rd)
REF. NO. 16033108-2-2 Figure 4	

and heard within and flying over the survey area on each site visit. The number, breeding evidence, and approximate location of each bird or bird group was recorded on mapping of the property.

2.4 Nightjar Surveys

Nightjar surveys were conducted in general accordance with the Canadian Nightjar Survey: Protocol 2022 (Birds Canada, 2022) on June 16 and July 13, 2022. The survey stations were located in areas of the subject property which were deemed to have potentially suitable habitat (**Figure 4**). The surveys were conducted during peak full moon periods. The conditions on the survey nights were clear with low cloud cover and low winds, with the survey completed within the identified timeframe (i.e., start half hour after sunset). Each survey was based on auditory observations and completed for approximately 15 to 30 minutes.

2.5 Species at Risk

Prior to fieldwork, records of Species at Risk (SAR) for the general area were queried through the NHIC database and various online citizen science databases. A general screening for potential SAR habitat opportunities was completed for the subject property. Habitat opportunities for SAR on the site were then assessed by comparing habitat preferences of species deemed to have potential to occur against current site conditions. The locations of all encountered SAR were also recorded.

2.6 Significant Wildlife Habitat

The Significant Wildlife Habitat Criteria for Ecoregion 6E (MNRF 2015) were compared with the habitat attributes of the subject property to determine the potential for candidate SWH.

2.7 Aquatic Habitat Surveys

There are no defined watercourses within this property and therefore was no need for aquatic habitat surveys to have been completed as part of this assessment.

3.0 EXISTING CONDITIONS

3.1 Land Use

At present, there are no structures on the property. The majority of the tableland outside of the Natural Heritage System (NHS) in the northern half of the property was planted in 2022 with soybean (c.f. *Glycine max*). The southern portion was planted in 2022 with corn (c.f. *Zea mays*). The property fronts onto the south side of Salem Road (**Photographs 1 and 2**). Access is currently available at two farm lanes, one on the west side and one on the east side (**Photographs 3 and 4**).

Land use to the south includes NHS Core Area 1 (deciduous forest, shrub thicket swamp, and old field meadow), agricultural cropland, and single-family rural residential. Land uses to the east include NHS Core Area 3 (deciduous treed swamp, mixed treed swamp, deciduous forest, and Simcoe County conifer plantation. North of the property, on the other side of Salem Road, the land use is comprised of NHS Core



Photograph 1. Westward view of Salem Road at 259 Salem Road (Watersand Construction Inc.) property fronting onto the south side of Salem Road



Photograph 2. Eastward view of Salem Road at 259 Salem Road (Watersand Construction Inc.) property fronting onto the south side of Salem Road



Photograph 3. Southward view of current access to CUM1-1-A at 259 Salem Road (Watersand Construction Inc.) on west side of the property



Photograph 4. Southward view of current access to CUM1-1-B at 259 Salem Road (Watersand Construction Inc.) on east side of the property

Area 2 (mixed forest, old field meadow, deciduous forest), agricultural cropland, hedgerows and single-family rural residential. To the west lies NHS Core Area 1 (deciduous treed swamp, deciduous forest, conifer plantation), old field meadow, and single-family rural residential.

3.2 Topography and Site Drainage

As previously stated, the tableland portion outside of the staked and buffered NHS is predominantly used for agricultural purposes, namely annual row crops (soybean and corn in 2022), and remains undeveloped at present.

As described in the Hydrogeological Investigation and Water Balance Assessment report (EXP Services Inc. 2022b), the general topography is considered relatively flat with gradual northeasterly, southeasterly, and southwesterly slopes towards the local creeks which drain to Lake Simcoe in the east or Georgian Bay in the northwest. The reader is referred to Section 2.2.1 and Appendix H of that report for additional details on topography and drainage.

Additional details on topography are included in the Geotechnical Investigation report (EXP Services Inc. 2022a), with ground surface elevations at their borehole locations ranging from 310.84 to 312.45 m, representing a relief of approximately 1.6 m over the site.

3.3 Soil Conditions

As described in the Geotechnical Investigation report (EXP Services Inc. 2022a), detailed profiles of the overburden were measured at each of their borehole locations. The stratigraphy encountered at the site typically comprises topsoil overlying local clayey silt or silt, granular soils consisting of sand/silty sand/sand and silt/sandy silt, and glacial till. Brief descriptions of these soil/overburden components are provided as follows.

Topsoil

A layer of topsoil, 80 to 300 mm in thickness, was encountered at the surface of all boreholes.

Clayey Silt

The clayey silt layer was encountered below the topsoil in two of the boreholes, ranging from 4.0 to 8.1 m in depth along with trace to some sand and gravel.

Sand/Silty Sand/Sand and Silt/Sandy Silt

A major granular deposit of this material was encountered in all boreholes, with the exception of Boreholes 102 and 104. Trace clay and gravel were observed throughout this unit, with sand and gravel layers and occasional silt seams also noted locally. The granular layers were particularly dominant at the south end of the property, locally intercepted by the till deposit. Till and sand layers were more comparably represented at the north end of the property.

Silt

Boreholes 102, 106 and 108 had a localized silt layer, which was encountered below the topsoil, clayey silt or sand. The silt layer also contained trace to some sand, trace clay and trace gravel.

Till

A till layer consisting of sand silt/silty sand (locally clayey silt) was encountered at Boreholes 101, 103, 105, 106, 109 and 114 to 116. This soil unit was also intermixed with layers of the aforementioned granular soils (sandy/silty, sand/sand, and silt/sandy silt). Also noted were variable clay and gravel contact along with cobbles and boulders, including wet sand seams.

3.4 Vegetation

3.4.1 Regional Vegetation

The property located at 259 Salem Road lies within Site District 6E-8, which is part of Site Region 6E (Hanna 1984). Site District 6E-8 consists of a wide band extending from south of Lake Simcoe, eastward to the Bay of Quinte, including Lake Scugog, Rice Lake, and the southern section of the Kawartha Lakes. Site District 6E-8 is generally described as an area of drumlinized till with local areas of water-lain silt and clay. The majority of the site district is contained within the Peterborough Drumlin Field, a physiographic region typified by drumlinoid hills, drumlin fields and eskers, interrupted by intervening wide river valley basins with muck, spillway, and sand deposits (Chapman and Putnam 1984).

Rowe (1972) contains a forest classification, and based on the classification mapping, property lies within the Huron-Ontario Section (L.1) of the Great Lakes-St. Lawrence Forest Region. The original forest cover at that time consisted primarily of hardwoods, such as sugar maple (*Acer saccharum*) and beech (*Fagus grandifolia*). Other woody associates include basswood (*Tilia americana*), white ash (*Fraxinus americana*), red ash (*Fraxinus pennsylvanica*), yellow birch (*Betula alleghaniensis*), red maple (*Acer rubrum*), red oak (*Quercus rubra*), white oak (*Quercus alba*) and bur oak (*Quercus macrocarpa*). Conifers such as eastern hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*), and balsam fir (*Abies balsamea*) are typical within the tolerant hardwood types. Species such as large-toothed aspen (*Populus grandidentata*), butternut (*Juglans cinerea*), bitternut hickory (*Carya cordiformis*), hop hornbeam (*Ostrya virginiana*), and black cherry (*Prunus serotina*) are scattered throughout. Species associated with river-bottoms and swamp sites include blue-beech (*Carpinus caroliniana*), silver maple (*Acer saccharinum*), slipper elm (*Ulmus rubra*), rock elm (*Ulmus thomasii*), and black ash (*Fraxinus nigra*). Eastern white cedar (*Thuja occidentalis*) is ubiquitous to swampy depressions and in old field habitats.

The original forest cover in many parts of south and south-central Ontario has been cleared for settlement and cultivation, and consequently, contiguous, extensive forest tracts are relatively uncommon. Tableland woodland remaining within settlement (urban) areas are usually disturbed and/or in various stages of successional growth.

3.4.2 Site Vegetation Communities

The location and extent of the agricultural, cultural and natural feature communities (ELCs) on the Watersand Construction Inc. (Parcel 30) property are characterized and illustrated on **Figure 3**. The ELCs on **Figure 3** have been revised, where warranted, to reflect the standard Lee (2008) ELC codes. However, the boundaries of the NHS features and the SSP mandated buffers remain the same as those staked in-situ with NVCA staff in 2014. The original 2014 ELC figure is contained in Appendix B-16 of the **Subwatershed Impact Study Report** (Schaeffers & Associates Ltd. *et al.* 2017).

Table 2 contains a listing of the ELC communities identified, along with modified ELC characterization codes, where warranted as of 2022, based mainly on Lee (2008), with some revisions. A total of twelve (12) features (4 cultural, 3 forest/woodland, and 5 wetland) consisting of multiple units (e.g., ARG-A, ARG-B, ARG-C; FODM6-5-A, FODM6-5-B, FODM6-5-C) and comprised of both NHS and non-NHS features were delineated on the property. Some of the NHS features are comprised mainly of forest/woodland, with small inclusions of other vegetation communities. **Table 2** also contains a summary description of the vegetation community, along with typical inherent woody and groundcover plant species, where applicable.

The 2014 features (including multiples for a total of 20 units on-site) with revisions, where warranted (e.g., Dry-Moist Old Field Meadow CUM1-1-A is now OAGM1 planted with soybean in 2022). The units are as follows:

- Agricultural AGR-A (OAGM1)
- Agricultural AGR-B (OAGM1)
- Agricultural AGR-C (OAGM1)
- Dry-Moist Old Field Meadow CUM1-1-A (OAGM1)
- Dry-Moist Old Field Meadow CUM1-1-B (OAGM1)
- Cultural Meadow CUM (OAGM1)
- Hedgerow HR-A (FODM11)
- Hedgerow HR-B (FODM11)
- Fresh-Moist Sugar Maple-Hardwood Deciduous Forest FOD6-5-A (FODM6-5)
- Fresh-Moist Sugar Maple-Hardwood Deciduous Forest FOD6-5-B (FODM6-5)
- Fresh-Moist Sugar Maple-Hardwood Deciduous Forest FOD6-5-C (FODM6-5)
- Mixed Forest FOM (FOMM4-2)
- Coniferous Forest FOC4 (FOCM4-1)
- Mineral Deciduous Swamp SWD4 (SWDM2-2)
- Poplar Mineral Deciduous Forest SWD4-5 (SWDM4-5)
- Deciduous Swamp SWD-A (SWDM4-3)
- Deciduous Swamp SWD-B (SWDM4-3)
- Open Aquatic OAO1-A

Table 2. List of ELC Units (Vegetation Communities) Watersand Construction Limited 259 Salem Road Residential Subdivision Lands

ELC Code*	Vegetation Type	Summary Description
Cultural		
AGR-A (OAGM1)**	Agricultural Annual Row Crops	- as illustrated on Figure 3, this portion of tableland was planted in 2022 with an agricultural row crop of soybean (c.f. <i>Glycine max</i>) - part of this agricultural tableland feature lies within portions of the Natural Heritage System (NHS) buffer and also lies outside of and abuts the proposed Residential Subdivision lands
AGR-B (OAGM1)**	Agricultural Annual Row Crops	- as illustrated on Figure 3, this portion of tableland was planted in 2022 with an agricultural row crop of soybean (c.f. <i>Glycine max</i>) - part of this agricultural tableland feature lies within portions of the Natural Heritage System (NHS) buffer and also lies outside of and abuts the proposed Residential Subdivision lands
AGR-C (OAGM1)**	Agricultural Annual Row Crops	- as illustrated on Figure 3, this portion of tableland was planted in 2022 with an agricultural row crop of corn (c.f. <i>Zea mays</i>) - part of this agricultural tableland feature lies within portions of the Natural Heritage System (NHS) buffer and also lies outside of and abuts the proposed Residential Subdivision lands
CUM1-1-A (OAGM1)**	Dry-Moist Old Field Meadow Annual Row Crop	- as illustrated on Figure 3, this portion of tableland was planted in 2022 with an agricultural row crop of soybean (c.f. <i>Glycine max</i>) - this cultural feature was characterized as dry-moist old field meadow when the NHS features staking was undertaken with NVCA staff in 2014 - part of this agricultural tableland feature lies within portions of the Natural Heritage System (NHS) buffer and also lies outside of and abuts the proposed Residential Subdivision lands
CUM1-1-B (OAGM1)**	Dry-Moist Old Field Meadow Annual Row Crop	- as illustrated on Figure 3, this portion of tableland was planted in 2022 with an agricultural row crop of soybean (c.f. <i>Glycine max</i>) - this cultural feature was characterized as dry-moist old field meadow when the NHS features staking was undertaken with NVCA staff in 2014 - part of this agricultural tableland feature lies within portions of the Natural Heritage System (NHS) buffer and also lies outside of and abuts the proposed Residential Subdivision lands
CUM OAGM1**	Cultural Meadow Annual Row Crop	- as illustrated on Figure 3, this portion of tableland was planted in 2022 with an agricultural row crop of soybean (c.f. <i>Glycine max</i>) - this cultural feature was characterized as dry-moist old field meadow when the NHS features staking was undertaken with NVCA staff in 2014 - part of this agricultural tableland feature lies within portions of the Natural Heritage System (NHS) buffer and also lies outside of and abuts the proposed Residential Subdivision lands

HR-A (FODM11)**	Hedgerow Naturalized Deciduous Hedge-row	- as illustrated on Figure 3, this wooded feature lies almost entirely outside of the NHS, with minimal portions lying with parts of the NHS buffer as staked in 2014 with NVCA staff - typical trees in the overstorey and understorey include white ash, white birch, black cherry, trembling aspen, balsam poplar, beech, basswood, white elm, sugar maple, yellow birch, red maple and scattered silver maple and eastern hemlock and red pine and Scots pine - the shrub and vine stratum contains choke cherry, poison ivy, Virginia creeper, wild red raspberry, black raspberry, beaked hazelnut, common buckthorn, and eastern prickly gooseberry - typical groundflora includes eastern bracken fern, tall goldenrod, enchanters nightshade, woodland strawberry, wild coffee, partridge-berry, sweet cicely, climbing bittersweet, thimbleweed, dame's-rocket, field horsetail, royal fern, and Christmas fern
HR-B (FODM11)**	Hedgerow Naturalized Deciduous Hedgerow	- as illustrated on Figure 3, this portion of tableland was planted in 2022 with an agricultural row crop of soybean (c.f. <i>Glycine max</i>)
Woodland		
FOD6-5-A (FODM6-5)**	Fresh-Moist Sugar Maple-Hardwood Deciduous Forest	- as illustrated on Figure 3, there are 3 units of this woodland feature on the property, all of which lie within the NHS and extend off-site - this particular unit lies on the west side of the property, at an interface with a relatively large block of Ag (OAG1) - typical dominant trees in the overstorey include sugar maple, white ash, trembling aspen, balsam poplar, red maple, white elm, white birch, basswood, beech, and scattered Scots pine, red pine and eastern hemlock - trees, shrubs and vines in the understorey and shrub strata include choke cherry, poison ivy, black raspberry, wild red raspberry, Virginia creeper and riverbank grape - typical groundcover includes tall goldenrod, eastern bracken fern, woodland strawberry, partridgeberry, field horsetail, royal fern, Christmas fern, enchanters nightshade, sweet cicely and herb-robert - this woodland feature also contains vernal pools and ridge/troughs which contain wetland trees, shrubs and groundflora species (unevaluated wetland)
FOD6-5-B (FODM6-5)**	Fresh-Moist Sugar Maple-Lowland Ash Deciduous Forest	- this unit lies in the southwest corner of the property - tree, shrub, vine and groundcover plants are similar to those found in FODM6-5-A
FOD6-5-C (FODM6-5)**	Fresh-Moist Sugar Maple-Lowland Ash Deciduous Forest	- this unit lies along the southern edge of the property - tree, shrub, vine and groundcover plant species are similar to those found in FODM6-5-A and FODM6-5-B

FOM (FOMM4-2)**	Mixed Forest Dry-Fresh White Cedar-Poplar Mixed Forest	- as illustrated on Figure 3, there is a unit of this woodland feature in the central portion of the property at the interface between AGR-B and FOC4 - dominant trees in the overstorey and understorey include sugar maple, white birch, eastern white cedar, eastern hemlock, trembling aspen, beech, white ash, red oak, balsam poplar, red maple, and scattered Carolina poplar - the shrub and vine stratum includes choke cherry, tartarian honeysuckle, and red-osier dogwood - typical groundflora includes shinleaf, common dandelion, spinulose wood-fern, herb-robert, helleborine, wild lily-of-the-valley, sensitive fern, lady fern, partridgeberry, wild sarsaparilla, heart-leaved aster, Pennsylvania sedge, long-stalked sedge, and broad loose-flowered sedge
FOC4 (FOCM4-1)**	Coniferous Forest Fresh-Moist White Cedar Coniferous Forest	- as illustrated on Figure 3, there is a unit this woodland feature in the central portion of the property at the interface between FOC4 and SWD-B - dominant trees in the overstorey and understorey include eastern white cedar, eastern hemlock, red maple, silver maple, yellow birch, white birch, black cherry, basswood and scattered beech - the shrub and vine stratum includes red-osier dogwood, alternate-leaved dogwood, choke cherry, wild red raspberry, riverbank grape, Virginia creeper, and climbing bittersweet - the groundflora is similar in composition to that found in FOM and the transitional edges with SWD-B
Wetland		
SWD4 (SWDM2-2)**	Mineral Deciduous Swamp Green Ash Mineral Deciduous Swamp	- as illustrated on Figure 3, there is a unit of unevaluated wetland (treed swamp) in the extreme northeast corner of the property, and is contiguous off-site the east, part of the NHS - green ash is the dominant tree in the overstorey, with other woody associates such as red maple, silver maple, white elm, basswood, trembling aspen, balsam poplar, white birch, and scattered sugar maple - the shrub and vine stratum includes red-osier dogwood, alternate-leaved dogwood, riverbank grape, Virginia creeper, red-berried elder and white elderberry - typical groundflora includes beggar-ticks, sensitive fern, royal fern, eastern bracken fern, spinulose wood-fern, wool-grass, awl-fruited sedge, graceful sedge, water horehound, stinging nettle, Joe-pye-weed, spotted jewelweed, boneset, small-flowered willow-herb Jack-in the-pulpit, deadly nightshade, and wild mint
SWD4-5 (SWDM4-5)**	Poplar Mineral Deciduous Swamp	- as illustrated on Figure 3, there is a unit of unevaluated wetland (treed swamp) in the central portion of the property, fronting onto Salem Road and is contiguous on-site to the south (FODM6-5-A), part of the NHS - trembling aspen, balsam poplar, sugar maple, red maple, silver maple, white birch, white elm, basswood, and ash trees are dominant, with scattered white spruce and white cedar - typical groundflora includes beggar-ticks, sensitive fern, royal fern, eastern bracken fern, spinulose wood-fern, wool-grass, awl-fruited sedge, graceful sedge, water horehound, stinging nettle, Joe-pye-weed, spotted jewelweed, boneset, small-flowered willow-herb Jack-in the-pulpit, deadly nightshade, and wild mint

SWD-A (SWDM4-3)	Deciduous Swamp White Birch-Poplar Mineral Deciduous Swamp	- as illustrated on Figure 3, there is a unit of unevaluated wetland (treed swamp) in the central portion of the property, fronting onto Salem Road and is contiguous on-site to the south (FODM6-5-A), part of the NHS - trembling aspen, balsam poplar, dead/dying white ash, white elm, basswood, red oak, beech, red maple, silver maple, green ash and scattered sugar maple are prevalent - shrub and vine stratum species include riverbank grape, Virginia creeper, choke cherry, prickly gooseberry, staghorn sumac, wild red raspberry, red-osier dogwood, and common buckthorn - typical groundflora includes wild sarsaparilla, graceful sedge, Jack-in-the-pulpit, helleborine, woodland strawberry, herb-robert, deadly nightshade, field horsetail, wintergreen, common dandelion, wild basil, tall goldenrod, water plantain, spotted jewelweed, sensitive fern, lady fern, purple loosestrife, and water horehound
SWD-B (SWDM4-3)	Deciduous Swamp White Birch-Poplar Mineral Deciduous Swamp	- as illustrated on Figure 3, there is a relatively large unit of unevaluated wetland (treed swamp) in the south-central portion of the property, with its eastern edge at the interface with FOD6-5-A, FOC, CUM and FOD6-5-C - the tree, shrub, vine and groundcover is similar to that found in SWD-A
OA01-A	Open Aquatic	- as illustrated on Figure 3, there is a small bowl-shaped depression in the northwest corner of the property, an inclusion within FODM6-5-A - this aquatic feature contains stagnant ponded water with saturated muddy edges dominated by narrow-leaved cattail - the inner stagnant ponded water contains common duckweed, greater duckweed, water-parsnip, bulb-bearing water hemlock, riverbank grape, deadly nightshade, beggar-ticks, water horehound, sphagnum moss, tall goldenrod, enchanters nightshade, lichens, wool-grass, foxtail sedge, purple loosestrife, retrorse sedge and porcupine sedge - trees and shrubs in and around the edges include red maple, green ash, scattered black ash, white elm, red-osier dogwood, alternate-leaved dogwood
OA01-B	Open Aquatic	- as illustrated on Figure 3, there is a bowl-shaped dug-out pond in the northwest corner of the property, at the interface with SWD-A, and within the NHS - this aquatic feature contains 1-2 m of stagnant ponded water with saturated muddy edges dominated by narrow-leaved cattail, with an outlet swale on the south side - aquatic forbs, ferns, sedges, grasses and submergents include common duckweed, water milfoil, water plantain, bulb-bearing water hemlock, purple loosestrife, purple-stemmed aster, creeping bent-grass, wool grass, reed canary grass, Canada bluejoint grass, marsh horsetail, water horehound, deadly nightshade, swamp horsetail, dark-green bulrush, wild mint, sweet flag and blue iris
MASM1-1/ SWDM3-1/ MASM1-14	Cattail Mineral Shallow Marsh/Red Maple Mineral Deciduous Swamp/Reed Canary Grass Mineral Shallow Marsh	- as illustrated on Figure 3, there is a linear trough at the southern edge of ARG-A, dominated by and combination of cattail shallow marsh, deciduous treed swamp, and reed canary grass shallow marsh - typical groundflora includes narrow-leaved cattail, broad-leaved cattail, reed canary grass, purple loosestrife, purple-stemmed aster, deadly nightshade, spotted Joe-pye-weed, boneset, clearweed, water horehound, riverbank grape, Virginia creeper, water plantain, spotted jewelweed, creeping bentgrass, fragrant bedstraw, and scouring-rush - trees and shrubs include red maple, white elm, white poplar, red-osier dogwood, alternate-leaved dogwood and white spruce

* The Ecological Land Classification code labels on **Figure 3** mapped as part of the City of Barrie Natural Heritage System (NHS) by NRSI *et al.* (2010) and NRSI (2012) were based on the MNRF ELC for Southern Ontario by Lee *et al.* (1998).

** As part of this EIS, some of the ELC code labels on **Figure 3** have been updated (e.g., AGR to OAGM1, SWD-A to SWDM4-3) in this table based on Lee (2008) and/or a change in the planted 2022 crop cover (e.g., CUM1-1 to OAGM1). For ease of location of a particular ELC unit within or outside of the NHS, a lettered suffix has been added (e.g., AGR to AGR-A, SWD to SWD-A, FOD6-5 to FOD6-5-A, HR to HR-A). The boundaries of the NHS features and applicable buffers as staked with NVCA staff in 2014 remain the same.

- Open Aquatic OAO1-B
- Cattail Mineral Shallow Marsh MASM1-1/Red Maple Mineral Deciduous Swamp SWDM3-1/
Reed Canary Grass Mineral Shallow Marsh MASM1-14

The following sub-sections provide more detailed descriptions of the property features, including their ELC characterization, approximate boundaries, and inherent plant species composition in the overstorey, understorey, shrub, vine and groundcover strata, as well as selective photographs, where applicable. **Figure 3** shows the staked NHS (OLS file) vegetation community boundaries and mandated SSP policy buffers, along with revised ELC unit codes for most of the features.

Agricultural AGR-A (OAGM1)

Photograph 5 provide a south-facing view of the agricultural tableland portion which was planted with soybean in 2022. As per **Figure 3**, the majority of the tableland lying outside of the NHS is comprised of annual row crops, be it soybean or corn. Parts of this cultural feature also contains narrow strips dominated by uncut weeds, grasses and forbs. Typical species in these strips include tall goldenrod (*Solidago altissima*), Canada goldenrod (*Solidago canadensis*), horseweed (*Conyza canadensis*), wild carrot (*Daucus carota*), common ragweed (*Ambrosia artemisiifolia*), common milkweed (*Asclepias syriaca*), New England aster (*Symphyotrichum novae-angliae*), purple-stemmed aster (*Symphyotrichum puniceum*), common burdock (*Arctium minus*), curly dock (*Rumex crispus*), awnless brome grass (*Bromus inermis*), dame's-rocket (*Hesperis matronalis*), sow-thistle (*Sonchus arvensis*), cow vetch (*Vicia cracca*), timothy (*Phleum pratense*), orchard grass (*Dactylis glomerata*), quackgrass (*Elymus repens*), wild cucumber (*Echinocystis lobata*), field peppergrass (*Lepidium campestre*), and field penny-cress (*Thlapsi arvense*). These uncut strips also contained tree saplings, along with shrubs, such as white elm, trembling aspen, common buckthorn (*Rhamnus cathartica*) and red-osier dogwood (*Cornus stolonifera*).

Agricultural AGR-B (OAGM1)

In the central portion of the property is a relatively large block of agricultural annual row crop, planted with soybean in 2022 (**Photograph 6**). This cultural feature is relatively free of grasses, weeds and forbs, albeit along the edges of the wooded feature contained within the NHS.

Agricultural AGR-C (OAGM1)

In the southern quadrat of the property unit AGR-C, planted in 2022 with corn (**Photograph 7**). Approximately half of this cropland feature lies within the watershed jurisdiction of the NVCA, while the other half lies within the watershed jurisdiction of the LSRCA, as shown on **Figure 3**.

Dry-Moist Old Field Meadow CUM1-1-A (OAGM1)

Based on the City of Barrie Natural Heritage Characterization Report (NRSI *et al.* 2012) and during the NHS staking exercise with the NVCA in 2014, this cultural feature was characterized as dry-moist old field meadow, and dominated by weeds, grasses and forbs. This cultural unit was cut in subsequent years planted



Photograph 5. Southward view of AGR-A (OAGM1) showing remnants of harvested soybean (*Glycine max*) planted in 2022



Photograph 6. Southward view of AGR-B (OAGM1) showing remnants of harvested soybean (*Glycine max*) planted in 2022



Photograph 7. View of west edge of corn field planted in 2022, part of Agricultural AGR-C (OAGM1) at south end of property, at interface with AGR-C (OAGM1) planted in 2022 with soybean (remnant cut)



Photograph 8. Southwest view of Dry-Moist Old Field Meadow CUM1-1-A, in combination with soybean planted in 2022

with annual row crops specifically with soybean (sparse yield) in 2022 (**Photograph 8**). Other groundcover consisted of grasses, weeds and forbs.

Typical grasses, weeds and forbs include tall goldenrod, Canada goldenrod, New England aster, common milkweed, common mullein (*Verbascum thapsus*), field horsetail (*Equisetum arvense*), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), grass-leaved goldenrod (*Solidago graminifolia*), calico aster (*Symphyotrichum lateriflorum*), common buttercup (*Ranunculus acris*), curly dock, cow vetch, common ragweed, panic grass (*Panicum capillare*), brome grass, timothy, orchard grass, wild carrot, heart-leaved aster (*Symphyotrichum cordifolium*), common plantain (*Plantago major*), English plantain (*Plantago lanceolata*), sow-thistle, bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), common strawberry (*Fragaria virginiana*), horseweed, strawberry blite (*Chenopodium capitatum*), ox-eye daisy (*Chrysanthemum leucanthemum*), daisy fleabane (*Erigeron annuus*), black-eyed Susan (*Rudbeckia hirta*), and dame's-rocket.

There are also relatively small shallow wet depressions dominated by a sparse growth of soybean in combination with wetland plant species (**Photograph 9**). Plant species in these shallow depressions include: spotted Joe-pye-weed, boneset, reed canary grass (*Phalaris arundinacea*), tall goldenrod, Canada goldenrod, purple-stemmed aster, purple loosestrife (*Lythrum salicaria*), sensitive fern (*Onoclea sensibilis*), riverbank grape, Virginia creeper, beggar-ticks (*Bidens frondosa*), wool-grass (*Scirpus cyperinus*), lady fern (*Athyrium filix-femina*), water plantain (*Alisma plantago-aquatica*), bulb-bearing water hemlock (*Cicuta bulbifera*), narrow-leaved cattail (*Typha angustifolia*), water smartweed (*Persicaria amphibia*), pale smartweed (*Persicaria lapathifolia*), swamp milkweed (*Asclepias incarnata*), slender spike-rush (*Eleocharis erythropoda*), American water horehound (*Lycopus americanus*), creeping bentgrass, small-flowered willowherb (*Epilobium parviflorum*), fragrant bedstraw (*Galium triflorum*), deadly nightshade (*Solanum dulcamara*), foxtail sedge (*Carex vulpinoidea*), and blunt spike-rush (*Eleocharis obtusa*).

Trees and shrubs within the shallow depressions and bordering the northern property perimeter (Salem Road right-of-way hedge-row) include Missouri willow (*Salix eriocephala*), pussy willow (*Salix discolor*), slender willow (*Salix petiolaris*), Bebb's willow (*Salix bebbiana*), red-osier dogwood, black cherry, basswood, trembling aspen, white ash, Scots pine (*Pinus sylvestris*), white willow (*Salix alba*), crack willow (*Salix fragilis*), maple-leaved viburnum (*Viburnum acerifolium*) and eastern white cedar.

Dry-Moist Old Field Meadow CUM1-1-B (OAGM1)

Photograph 10 provides a south-facing view of this cultural feature, which was planted with soybean in 2022. Parts of this block of soybean field also contains unplanted and uncut strips comprised of troughs and fill piles. The groundcover in these unplanted features contain similar groundcover weeds, grasses and forbs as those found in C\UM1-1-A.

Cultural Meadow CUM (OAGM1)

This feature was characterized as cultural meadow by NRSI et al. (2012) and was meadow during the NHS features staking with NVCA staff in 2014. In 2022 it was planted with soybean (**Photograph 11**).



Photograph 9. Southward view of a small shallow damp/wet depression in cultural unit CUM1-1-A which lies outside of the NHS and was planted with soybean in 2022 in combination with old field meadow species), depression contains aquatic forbs, sedges, ferns and grasses



Photograph 10. Southeast view of dry-moist old field meadow (CUM1-1-B), showing planted with soybean in 2022, showing conditions after harvest, lies outside of the NHS



Photograph 11. Westward view of cultural meadow (CUM) planted in 2022 with soybean, showing remnants after harvest in September, outside of the NHS



Photograph 12. View of part of hedgerow HR-A (FODM11) along northern edge of CUM, comprised of white ash, white birch, trembling aspen, red maple, sugar maple, black cherry, white elm, and typical hedgerow shrubs, not part of the NHS

Hedgerow HR-A (FODM11)

Typical trees, shrubs and vines found in this convoluted relatively wide hedgerow are healthy/dead/dying white ash, trembling aspen, red maple, silver maple, white birch, black cherry, white elm, choke cherry, common buckthorn, prickly gooseberry, red-berried elder (*Sambucus pubens*), white baneberry (*Sambucus canadensis*), maple-leaved viburnum, wild red raspberry (*Rubus idaeus*), poison ivy (*Toxicodendron radicans*), staghorn sumac (*Rhus typhina*), riverbank grape and Virginia creeper (**Photograph 12**).

Typical groundcover include eastern bracken fern (*Pteridium aquilinum*), tall goldenrod, enchanter's nightshade (*Circaea lutetiana*), woodland strawberry (*Fragaria vesca*), wild coffee (*Triosteum perfoliatum*), partridgeberry (*Mitchella repens*), sweet cicely (*Ozmorhiza claytonia*), climbing bittersweet (*Celastrus scandens*), dame's-rocket, field horsetail, royal fern (*Osmunda regalis*), and Christmas fern (*Polystichum acrostichoides*).

Hedgerow HR-B (FODM11)

Further to the east and an inclusion within AGR-C is a north to south hedgerow, dominated by the same trees, shrubs, vines and groundcover as found in HR-A (**Photograph 13**).

Fresh-Moist Sugar Maple-Hardwood Deciduous Forest FOD6-5-A (FODM6-5)

As shown of **Figure 3**, there are three (3) units of this forested feature, with two of them contiguous and extending off-site, all of which lie within the NHS. This particular unit is situated in the northern half of the property with interfaces to other NHS features (SWD4-5, SWD-B and an inclusion OAO-A). Its northern edge abuts CUM1-1-A, which lies outside of the NHS, but includes buffers (**Photograph 14**).

Dominant tree species include sugar maple, trembling aspen, white elm, balsam poplar, and red maple. Other woody associates including shrubs and vines are white ash (dead-dying), white birch, yellow birch, eastern hemlock, poison ivy, Virginia creeper, riverbank grape, black raspberry (*Rubus alleghaniensis*), wild red raspberry, basswood, Scots pine, red pine (*Pinus resinosa*), beech, silver maple, and beaked hazel (*Corylus cornuta*).

Typical groundflora include eastern bracken fern, hairy agrimony (*Agrimonia gryposepala*), enchanter's nightshade, tall goldenrod, woodland strawberry, partridge-berry, sweet cicely, climbing bittersweet, field horsetail, scouring-rush (*Equisetum hyemale*), thimbleweed (*Anemone virginiana*), dame's-rocket, royal fern, Christmas fern, daisy fleabane, deadly nightshade, and spinulose wood-fern (*Dryopteris carthusiana*), graceful sedge, false nettle (*Boehmeria cylindrica*), Jack-in-the-pulpit, and wild basil.

Fresh-Moist Sugar Maple-Hardwood Deciduous Forest FOD6-5-B (FODM6-5)

This particular unit of sugar maple-hardwood forest is contiguous off-site to the south and is of a similar composition to FOD6-A in terms of form, trees, shrub, vines and groundcover stratum.



Photograph 13. Eastward view of hedgerow HR-B (FODM11), comprised of sugar maple, white birch, poplars, black cherry, white ash, beech, and white elm, an inclusion within AGR-C (OAGM1) planted in 2022 with corn, but outside of the NHS



Photograph 14. View inside FOD6-5-A, dominated by sugar maple, poplars, white elm, red maple, with woody associates of white ash, white birch, yellow birch, and a typical groundcover of ferns, woodland forbs, sedges and grasses, lies within the NHS



Photograph 15. View of part of FOD6-5-C fresh-moist sugar maple - hardwood deciduous forest at south end of property, lies within the NHS and has a similar tree, shrub, vine and groundcover as FOD6-5-A and FOD6-5-B



Photograph 16. Inside view of mixed forest FOM, lies within the NHS and is comprised of sugar maple, trembling aspen, white birch, white elm, balsam poplar, red oak and white ash, along with a Category 1 (non-retainable butternut)

Fresh-Moist Sugar Maple-Hardwood Deciduous Forest FOD6-5-C (FODM6-5)

As shown in **Photograph 15**, the composition and form of this forested unit is similar to that found in FOD6-5-A and FOD6-5-B. It is situated in the southern property perimeter at interfaces with SWD-B and AGR-C and is contiguous off-site to the south.

Mixed Forest FOM (FOMM4-2)

Photograph 16 shows a perspective inside a portion of mixed forest FOM, situated in the northern half of the property with interfaces onto AGR-B and FOC4, and lies within the NHS. Dominant tree cover in the overstorey and understorey includes sugar maple, trembling aspen, white birch, white elm, beech, balsam poplar, red oak and white ash. Other tree species include eastern white cedar, eastern hemlock, and scattered green ash (*Fraxinus pennsylvanica* var. *subintergerrima*). The shrub and vine stratum contains choke cherry, tartarian honeysuckle (*Lonicera tatarica*), beaked hazel, and common buckthorn.\

Typical groundflora include shinleaf (*Pyrola elliptica*), common dandelion (*Taraxacum officinale*), spinulose wood-fern, helleborine, herb-robert, wild lily-of-the valley (*Maianthemum canadense*), sensitive fern, lady fern, partridgeberry, wild sarsaparilla, heart-leaved aster, Pennsylvania sedge, broad loose-flowered sedge (*Carex laxiflora*), long-stalked sedge (*Carex pedunculata*), woodland strawberry, and white lettuce (*Prenanthes alba*).

Coniferous Forest FOC4 (FOCM4-1)

Lying within the NHS is a stand characterized as coniferous forest, which is dominated by eastern white cedar, eastern hemlock, and scattered white spruce (*Picea glauca*). Other tree species include silver maple, red maple, white birch, yellow birch, black cherry, basswood and scattered beech (**Photograph 17**). Shrub and vine species include riverbank grape, Virginia creeper, climbing bittersweet, red-osier dogwood, alternate-leaved dogwood (*Cornus alternifolia*), maple-leaved viburnum, choke cherry, and wild red raspberry. The groundcover is similar in composition to that found in FOM and the transitional edges with SWD-B.

Mineral Deciduous Swamp (SWD4)

In the northwest corner of the property is a stand of mineral deciduous treed swamp (SWD4), dominated by green ash (**Photograph 18**), part of other or unevaluated wetland. Other tree species noted in the canopy and understorey include silver maple, red maple, yellow birch, white elm, scattered sugar maple and white ash (dead/dying), basswood, trembling aspen, balsam poplar, and white birch. There is a transitional woodland edge between the interface with AGR-A and SWD-A.

The groundflora is dominated by ferns, sedges and aquatic forbs and includes beggar-ticks, sensitive fern, royal fern, eastern bracken fern, spinulose wood-fern, wool-grass, awl-fruited sedge, graceful sedge, water horehound, clearweed, stinging nettle, false nettle, deadly nightshade, spotted Joe-pye-weed, spotted jewelweed, boneset, small-flowered willowherb, pale smartweed, Jack-in-the-pulpit, and wild mint.



Photograph 17. View inside part of coniferous forest FOC4 (FOCM4-1), lies within the NHS with a woody vegetation cover dominated by white cedar, eastern hemlock, silver maple, red maple, white birch, yellow birch, basswood, and a groundcover complement of typical ferns, forbs, sedges and grasses



Photograph 18. View inside a portion of mineral deciduous swamp SWD4, situated in the northeast corner of the property, dominated by green ash, with associates of red maple, yellow birch, white elm, white ash, basswood, silver maple, poplars and white birch



Photograph 19. View of the western edge of poplar mineral deciduous swamp SWD4-5, dominated by trembling aspen and balsam poplar, with associates of white birch, white ash (dead/dying), white elm, eastern white cedar, red maple and silver maple, with scattered sugar maple



Photograph 20. View of a bowl-shaped depression at the south end of SWD4-5, dominated by red maple and silver maple, part of other or unevaluated wetland

Poplar Mineral Deciduous Swamp SWD4-5 (SWDM4-5)

This other or unevaluated wetland feature lies within the NHS and is situated in the north-central portion of the property, fronting onto Salem Road (**Photograph 19**). The dominant tree species are trembling aspen, balsam poplar, white birch, white ash, white elm, eastern white cedar, and sugar maple. Silver maple and red maple are dominant in the bowl-shaped depression in the southern half of this feature, characterized as other or unevaluated wetland (**Photograph 20**). Other tree species include scattered white spruce, black cherry, beech basswood, eastern hemlock, red oak and yellow birch. The shrub and vine strata contain choke cherry, maple-leaved viburnum, tartarian honeysuckle, prickly gooseberry, common apple, riverbank grape, Virginia creeper, and wild red raspberry.

The groundcover contains herb-robert, sensitive fern, enchanter's nightshade, tall goldenrod, deadly nightshade, lady fern, hairy agrimony, daisy fleabane, shinleaf, woodland strawberry, graceful sedge, wild basil, large-leaved aster (*Eurybia macrophylla*), heart-leaved aster, spinulose wood-fern, Jack-in-the-pulpit, helleborine, red trillium (*Trillium erectum*), marginal wood-fern (*Dryopteris marginalis*), Gray's sedge (*Carex grayi*), retrorse sedge, Pennsylvania sedge, long-stalked sedge, and field horsetail.

Deciduous Swamp SWD-A (SWDM4-3)

Situated in the north half of the property, along the east property boundary is a stand dominated by other or unevaluated wetland, which lies within the NHS (**Photograph 21**). Typical trees in the overstorey and understorey include trembling aspen, balsam poplar, white birch, white ash (dead/dying), white elm, basswood, sugar maple, scattered beech and red oak and eastern hemlock, with eastern white cedar prevalent in the understorey. The shrub and vine stratum includes choke cherry, prickly gooseberry, staghorn sumac, Virginia creeper, riverbank grape, wild red raspberry, blackberry, red-berried elder, white baneberry and maple-leaved viburnum.

The groundflora consists mainly of woodland strawberry, sensitive fern, lady fern, tall goldenrod, wild sarsaparilla, Jack-in-the-pulpit, herb-robert, helleborine, fragrant sedge, wool-grass, awl-fruited sedge, wild basil, wild-lily-of-the-valley, wintergreen, enchanter's nightshade, deadly nightshade, common dandelion, daisy fleabane, field horsetail, and reed canary grass.

Deciduous Swamp SWD-B (SWDM4-3)

The relatively large stand of other or unevaluated wetland is situated in the northern half of the property, lying entirely within the NHS and extending off-site to the west. Its eastern interface abuts FOD6-5-A, FOC4, CUM and HR-A. The tree, shrub, vine and groundflora is the same as that found in SWD-A.

Open Aquatic OAO1-A

This other or unevaluated wetland feature lies within the NHS and is an inclusion within the western end of FOD6-5-A (**Photograph 22**). This feature consists of the bowl-shaped depression and contains stagnant ponded water, with saturated muddy edges dominated by a ring of narrow-leaved cattails. The inner pool and stagnant ponded water contains common duckweed (*Lemna minor*), greater duckweed (*Spirodela*



Photograph 21. View inside part of deciduous swamp SWD-A, including the drainage swale outlet from OAO1-B, part of the NHS, and comprised of poplars, white birch, white ash (dead/dying), white elm, basswood, sugar maple, beech, eastern hemlock and eastern white cedar in the understory



Photograph 22. View of part of open aquatic OAO1-A, an inclusion within FOD6-5-A, and in the NHS, contains stagnant ponded water and wet mucky edges of cattails, common duckweed, water parsnip, bulb-bearing water-hemlock, wool-grass, beggar-ticks, sedges, purple loosestrife and spike-rush



Photograph 23. View of part of open aquatic OAO1-B (dug-out pond), part of the NHS, and contains approximately 1-2m of stagnant water, an outer band of cattails and typical aquatic plants, mainly aquatic forbs, sedges, grasses, and ferns



Photograph 24. Eastward view of a narrow, shallow trough at the south edge of AGR-A, contains a combination of cattail shallow marsh (MASM1-1), red maple deciduous swamp (SWDM3-1) and reed canary grass shallow marsh (MASM1-14) and abuts the NHS and its buffer

polyrhiza), water parsnip (*Sium sauve*), bulb-bearing water hemlock, riverbank grape, wool-grass, deadly nightshade, beggar-ticks, water horehound, sphagnum moss, tall goldenrod, foxtail sedge, lichens, purple loosestrife, retrorse sedge, porcupine sedge (*Carex hystericina*), and spike-rush. Trees and shrubs around and within the edges of this open aquatic feature include red maple, green ash, white elm, red-osier dogwood, alternate-leaved dogwood, white elm and scattered black ash (*Fraxinus nigra*).

Open Aquatic OAO1-B

In the north portion of the property is a dug-out pond containing approximately 1-2m of stagnant water, an unevaluated or other wetland, lying within the NHS. It abuts CUM1-1-B and SWD-A and has a outer edge (ring) comprised of narrow-leaved cattails and broad-leaved cattails (*Typha latifolia*) (**Photograph 23**). Typical aquatic ferns, sedges and grasses include bulb-bearing water hemlock, water plantain, sensitive fern, marsh fern (*Thelypteris palustris*), purple loosestrife, fringed loosestrife (*Lythrum salicaria*), swamp milkweed, purple-stemmed aster, creeping bentgrass, Canada bluejoint grass, reed canary grass, common duckweed, Eurasian water milfoil (c.f. *Myriophyllum spicatum*), wool-grass, marsh horsetail (*Equisetum palustre*), water horsetail (*Equisetum fluviatile*), deadly nightshade, dark-green bulrush (*Scirpus atrovirens*), wild min, sweet flag (*Acorus calamus*) and blue iris (*Iris versicolor*). There is a north to south drainage swale with a perched culvert, containing no water, but has a saturated mucky bottom vegetated with typical aquatic plants as were found along the edges of the dug-out pond.

Bordering trees, shrubs and vines include willows (*Salix* spp.), red-osier dogwood, alternate-leaved dogwood, maple-leaved viburnum, red-berried elder, red maple, silver maple and white elm.

Cattail Mineral Shallow Marsh MASM1-1/Red Maple Mineral Deciduous Swamp SWDM3-1/Reed Canary Grass Shallow Marsh MASM1-14

Bordering the southern edge of AGR-A is a relatively narrow, linear trough containing a mosaic of other unevaluated wetland features, all lying within the NHS (**Photograph 24**). Trees, shrubs and vines include red maple, willow shrubs (*Salix* spp.), riverbank grape, Virginia creeper, wild cucumber, white elm, white poplar (*Populus alba*), red-osier dogwood, alternate-leaved dogwood and a single white spruce.

The groundcover is dominated by various combinations of narrow-leaved cattail, broad-leaved cattail, reed canary grass, purple loosestrife, purple-stemmed aster, deadly nightshade, spotted Joe-pye-weed, boneset, clearweed, water horehound, water plantain, spotted jewelweed, creeping bentgrass, fragrant bedstraw, and scouring-rush.

3.4.3 Floristics

Four butternuts (*Juglans cinerea*) were found on site, with locations shown on **Figure 4**. Butternuts are listed as Endangered (END) in the ***Endangered Species Act, 2007***. All four butternuts were assessed, by a certified Butternut Health Assessor, following the Ministry of Environment, Conservation and Parks (MECP) Butternut Health Assessment evaluation protocol, with all four determined to be Category 1 – non-retainable. A Category 1 butternut tree is defined as affected by Butternut Canker to such an advanced

degree that retaining the tree would not support the protection or recovery of Butternut trees in the area in which the tree is located. A butternut health assessment has been prepared for each tree and these are being submitted to the MECP.

No other Endangered (END) or Threatened (THR) Species at Risk (SAR) flora as listed in the current *ESA, 2007* were found or reported on site. The plant species inventories have also not resulted in the finding of any flora listed as Special Concern (SC) species, as listed in the *ESA, 2007*.

3.5 Amphibian Breeding Survey Results

Amphibian breeding surveys were conducted at a total of two locations corresponding to wetland features. Six species of amphibians were recorded during the surveys: Spring Peeper (*Pseudacris crucifer*), Wood Frog (*Lithobates sylvaticus*), American Toad (*Anaxyrus americanus*), Western Chorus Frog (*Pseudacris triseriata*), Green Frog (*Lithobates clamitans*) and Gray Treefrog (*Hyla versicolour*). A summary of the surveys is provided in **Table 3** and survey station locations are shown on **Figure 4**.

Table 3: Summary of Amphibian Survey Results

Breeding Amphibian Monitoring Stations	Date: April 11	Date: May 11	Date: June 16
Station 4 (259 Salem Road)	Spring Peeper: Code 3 (in two different directions)	American Toad: Code 2-3 Spring Peeper: Code 3 Gray Treefrog: Code 2-4	Western Chorus Frog: Code 3 (at less than 100 m and over 100 m)
Station 5 (259 Salem Road)	Wood Frog: Code 2-3 Spring Peeper: Code 3 and 2-3	American Toad: Code 1 Spring Peeper: Code 3 in pond Gray Treefrog: Code 2-	Western Chorus Frog: Code 3-20 Green Frog: Code 1-2

Note:

The calling codes are designated according to the Amphibian Road Call Counts (Gartshore *et al.*, 2004).

They are as follows:

- 1 – Individuals of one species can be counted, calls are not overlapping; second number denotes number of individuals.
- 2 – Calls of one species are overlapping; second number denotes estimated number of individuals.
- 3 – Full chorus of one species, calls continuous and overlapping, individuals not distinguishable.

3.6 Breeding Bird Survey Results

Appendix A provides breeding bird survey results for the subject property (259 Salem Road), together with a nearby site within the SSP which was surveyed at the same time for the applicant. A total of 27 bird species were documented on the subject property. The species observed were mainly forest-dependent (F) species and disturbance-tolerant (DT) species. Apart from being often found in human-disturbed habitats, the disturbance-tolerant birds are also generally wide-spread, common, and often found along habitat edges in Southern Ontario. The most frequently observed species in order of abundance were: European Starling (DT) (*Sturnus vulgaris*), Red-eyed Vireo (F) (*Vireo olivaceus*) and Song Sparrow (DT) (*Melospiza melodia*).

The Eastern Wood-pewee (*Contopus virens*) is a Special Concern species that was recorded within the Deciduous Forest (FOD) during the first breeding bird survey only.

The Barn Swallow (*Hirundo rustica*) is a Threatened species, owing to a decline in the availability of nesting habitat for it. In this regard, this species nests in roofed structures providing openings for entry, such as old barns; no such nesting habitat occurs within the subject lands. This species was only observed foraging over the subject property during the second survey.

Three area-sensitive species was recorded during the surveys, namely Hairy Woodpecker (*Picoides villosus*), Red-breasted Nuthatch (*Sitta canadensis*) and Ovenbird (*Seiurus aurocapillus*). While not rare, such species are often associated with higher quality habitats and either require large areas of contiguous habitat for breeding or are more productive in larger areas of suitable habitat. The specific habitat requirements vary by species.

Hairy Woodpecker have territories that cover 4-8 ha and require several tall trees and snags >25 cm DBH. This species utilizes mixed or deciduous forests and prefer to nest in mature trees (OMNR, 2000). One Hairy Woodpecker was observed in the Deciduous Forest (FOD) during the second breeding bird survey.

Red-breasted Nuthatch utilize coniferous and mixed wood forests, nesting in cavities in soft, decaying coniferous wood with DBH >12 cm (OMNR, 2000). One individual was noted during the second breeding bird survey.

Ovenbird utilize deciduous or mixed forests. Three individual Ovenbird were noted during the second survey.

No provincially ranked S1 through S3 (Critically Imperiled through to Vulnerable) species, were recorded in the subject property. The Eastern Wood-Pewee and Barn Swallow were the only avian SAR observed.

3.7 Nightjar Survey Results

Two surveys were conducted at two separate stations within the subject property. The stations were located around the shrubby areas on the property, which were deemed to have potential suitable habitat. Survey station locations are shown on **Figure 4**. There were no nightjar species recorded during the surveys.

3.8 Incidental Wildlife Observations

Incidental observations of the following wildlife species were made during the 2022 field investigations:

Amphibians and Reptiles

Northern Leopard Frog (*Rana pipiens*)

Eastern Gray Tree Frog (*Hyla versicolor*)

American Toad (*Anaxyrus americanus*)

Eastern Garter Snake (*Thamnophis sirtalis sirtalis*)

Mammals (sightings or tracks seen by CEA and pers. comm. with Watersand farmer who lives at the single-family house on McKay Road directly south of Parcel 30)

Star-nosed Mole (*Condylura cristata*)

Eastern Meadow Vole (*Microtus pennsylvanicus*)

White-tailed Deer (*Odocoileus virginianus*)

Coyote (*Canis latrans*)

Red Fox (*Vulpes vulpes*)

Eastern Cottontail (*Sylvilagus floridanus*)

Eastern Gray Squirrel (*Sciurus carolinensis*)

American Red Squirrel (*Tamiasciurus hudsonicus*)

Eastern Chipmunk (*Tamias striatus*)

American Porcupine (*Erethizon dorsatum*)

Striped Skunk (*Mephitis mephitis*)

Raccoon (*Procyon lotor*)

Bats (not identified to species; seen flying overhead at Amphibian Station 5)

Birds

Mallard (*Anas platyrhynchos*)

Downy Woodpecker (*Picoides pubescens*)

Pileated Woodpecker (*Dryocopus pileatus*)

Canada Goose (*Branta canadensis*) – on ground and flying overhead

Ring-billed Gull (*Larus delawarensis*) – flying overhead

Cedar Waxwing (*Bombycilla cedrorum*)

Great Blue Heron (*Ardea herodias*) – flying overhead

Yellow-bellied Sapsucker (*Sphyrapicus varius*) – holes in white birch trees

American Crow (*Corvus brachyrhynchos*)

Lepidoptera

Monarch (*Danaus plexippus*) – Special Concern (SC) in Ontario

3.9 Species at Risk

The *ESA* provides protection for species listed as Endangered or Threatened in Ontario, including their habitat. The Species at Risk in Ontario (SARO) List also identifies species of Special Concern that may become Threatened or Endangered in the future. Species of Special Concern and their habitats are not protected under the *ESA*.

Based on a review of the NHIC database as well as knowledge of the general area and experience with SAR in the region, the following eleven SAR have been identified as having potential to occur within the vicinity of the subject property.

Birds

- Barn Swallow (*Hirundo rusticca*) – Threatened – recorded on the subject property
- Bobolink (*Dolichonyx oryzivorus*) – Threatened
- Eastern Meadowlark (*Sturnella magna*) – Threatened
- Eastern Wood-pewee (*Contopus virens*) – Special Concern – recorded on the subject property
- Wood Thrush (*Hylocichla mustelina*) – Special Concern

Vascular Plants

- Butternut (*Juglans cinerea*) – Endangered (recorded on site)

Insects

- Monarch Butterfly (*Danaus plexippus*) – Special Concern

Mammals

- Eastern Small-footed Myotis (*Myotis leibii*) – Endangered
- Little Brown Myotis (*Myotis lucifugus*) – Endangered
- Northern Myotis (*Myotis septentrionalis*) – Endangered
- Tri-colored Bat (*Perimyotis subflavus*) – Endangered

Through field investigations for potentially suitable habitat and related features, a habitat screening and assessment of on-site habitat suitability was completed for each of these identified species. This assessment can be found in **Appendix B**, providing a detailed description of each species' habitat as well as a discussion of habitat suitability within the subject property and recommendations for mitigation where applicable. Mitigation for relevant species is as follows:

SAR Birds

Breeding bird surveys included specific assessment of the use of agricultural fields by Bobolink and Meadowlark, with no individuals seen or heard calling.

The presence of Barn Swallow is not considered significant as it was simply found foraging overhead with no structures providing potential nesting habitat on these lands. Foraging habitat for this species is widespread.

The presence of Eastern Wood-Pewee is not considered significant as it is widespread throughout Southern Ontario in deciduous and mixed forests. Forest areas are generally to be protected and buffered. Where there is to be any tree removals, these must occur outside of the annual breeding window of late April to late August to avoid impacts to nesting individuals of the confirmed and potential SAR species on the property.

SAR Bats

There is suitable habitat for SAR bats in the forested areas on the property. Although such woodland areas are generally to be protected and buffered, any required tree removals must occur outside of the active season for bats of April 1 to September 30.

Monarch Butterfly

Potential habit is present on the property as milkweed plants were observed, and with Monarch butterflies having been observed as part of incidental observations. However, areas of milkweed are quite widespread in this area and will continue to be represented on site, including within the buffer areas being protected; there are no concerns that proposed development will impact on the local availability of this food source for Monarch butterflies.

Butternut

A butternut tree survey was completed on the subject property due to the presence of potential habitat. As documented in Section 3.4.3, four Butternut have been documented within the edges of woodland communities. All have been assessed by a Certified Butternut Health Assessor as being Category 1, meaning that they have been affected by Butternut Canker to an advanced degree. Although these trees are located within or along the edges of woodland areas which are being protected, development is generally being proposed closer than 50 m of these trees, the area defined as the general protection zone, and in some cases may be within 25 m, defined as the minimum protection zone. A Butternut Health Assessment has been completed for each tree and is being submitted to the MECP.

A thorough search of all potentially suitable areas did not identify any additional Butternut specimens.

3.10 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) can be difficult to appropriately determine at the site-specific level, as the assessment must incorporate information from a wide geographic area and consider other factors such as regional resource patterns and landscape effects. To help with site level assessments, the MNRF has developed the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF 2015). The planning authorities have the responsibility to identify Significant Wildlife Habitat.

The Natural Heritage Policies of the Provincial Policy Statement [Subsection 2.1.4 d)] identify four principal components of SWH as described in the *Significant Wildlife Habitat Technical Guide* (MNRF, 2000), including:

- a) Seasonal Concentration Areas of Animals;
- b) Rare Vegetation Communities or Specialized Habitat for Wildlife;
- c) Animal Movement Corridors; and
- d) Habitats for Species of Conservation Concern.

Criteria for the identification of these features provided in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF, 2015) were used to screen wildlife habitat within the 259 Salem Road property for potential SWH (**Appendix C**). Identified potential candidate and confirmed SWH within this property are summarized as follows:

- **Seasonal Concentration Areas of Animals**
 - Bat Maternity Colonies (CANDIDATE) – The forested areas on the subject property provide potential maternity roosting habitat for bat species.
 - Turtle Wintering Area (CANDIDATE) – Some potential habitat occurs in the swamp communities, together with the two small ponded areas, but turtles weren't recorded during surveys and targeted surveys weren't completed.
- **Specialized Habitat for Wildlife**
 - Waterfowl Nesting Areas (CANDIDATE) – Potential habitat is present in the adjacent SWD communities.
 - Amphibian Breeding Habitat (Woodland) (CONFIRMED) – The swamp communities at amphibian survey stations 4 and 5 recorded sufficient numbers of Western Chorus Frog and Spring Peeper during amphibian breeding surveys to be considered significant, with there also being potential habitat in association with the two ponded areas.
 - Amphibian Breeding Habitat (Wetland) (CANDIDATE) – The two areas of open water ponding on the property are small but could qualify.

4.0 RESOURCE SIGNIFICANCE

4.1 Vegetation Communities

Extensive ecological field inventories were conducted previously in 2015 and 2015, with additional field work undertaken in 2022. The previous vegetation inventories were undertaken as part of the City of Barrie SIS (Schaeffers & Associates Ltd. *et al.* 2017). The location and extent of vegetation communities (cultural, woodland/forest, and wetland) are illustrated on **Figure 3**.

Additional relevant data, descriptions and figures were extracted, where appropriate, from NRSI and Dougan & Associates (2012) and NRSI (2012). From these sources, an assessment of the resource significance of the on site and abutting vegetation communities was feasible. In this regard, it is our professional opinion and supported by the data and schedules of the SSP that **none of the vegetation communities on or abutting the property are considered rare or significant on either a Federal, Provincial, or County level.**

The NHS features on and abutting the subject property are considered significant by the City of Barrie and are afforded protection through the policies of the Salem Secondary Plan. This includes “Other Wetlands”, also known as non-Provincially Significant Wetland (PSW) features (SWD4-5, SWD4, SWDA, SWDB, MASM1-1, SWDM3-1 and MASM4-1), all of which are afforded protection through the policies of the SSP. It also includes a variety of woodland communities which are to be protected. Development is only proposed within agricultural lands, cultural meadow and two hedgerows.

4.2 Floristics

From a floristics perspective, none of the plant species found on site are designated or listed as Endangered (END) with the exception of Butternut, Threatened (THR), Special Concern (SC), Species of Conservation Interest, NHIC SRank rarities or uncommon on either a Federal, Provincial, County, City or NVCA level based on the status lists described in **Section 2**.

As previously mentioned in **Section 3.4.3**, four butternuts were found on site. Butternuts are listed as Endangered (END) in the *Endangered Species Act, 2007*. All four butternuts were assessed following the Ministry of Environment, Conservation and Parks (MECP) Butternut Health Assessment evaluation protocol, by a certified Butternut Health Assessor. Butternut health assessments have been prepared and are being submitted to the MECP. None of the four trees found were deemed to be retainable.

4.3 Wildlife Species at Risk

A Species at Risk Assessment was completed, involving targeted surveys as appropriate.

Although potential habitat exists for Bobolink and Meadowlark, neither of these species were seen or heard calling during targeted surveys for them.

A single Barn Swallow (Threatened), was seen foraging during one of the surveys, but nesting habitat for that species is not present within the subject lands. There are no concerns relating to the loss of foraging habitat for this species.

Three Eastern Wood-Pewee (Special Concern) were heard calling from the deciduous forest community during the first breeding bird survey only. Habitat opportunities for that species are being protected, with a need to ensure any required tree removals occur outside of the period when this species is nesting. There is also habitat potential for Wood Thrush (Special Concern), although this species was not documented during targeted surveys.

The forested communities within the property provide potential bat roosting and maternity habitat, including for species of bats which are Endangered because of massive population declines caused by a fungal disease (declines are not habitat related). Treed habitat for bats is being protected within the property, with a need to ensure any required tree removals, including that within the hedgerow areas proposed for development, occur outside of the period of bat use of trees as maternity/roosting habitat.

Tree removals must be restricted to the period of October 1 to March 31 in order to avoid harm to both birds and bats.

There are milkweed plants within areas of both agricultural field and meadows within the subject property which could support Monarch Butterfly. Some of those areas of milkweed are to be preserved, with an opportunity for additional milkweed to develop within the required buffers from natural heritage features. There are no concerns that such habitat opportunities won't continue to exist within the subject property and adjacent lands subsequent to proposed development.

4.4 Significant Wildlife Habitat

Significant Wildlife Habitat potential was assessed, involving targeted surveys as appropriate.

As previously noted, forested areas of the property provide potential maternity/roosting habitat for bats; those forested areas are to be protected, with any required tree removals to occur outside of the period of bat maternity and roosting use.

Treed swamps provide a small amount of potential turtle wintering opportunities, although this use was not confirmed through our field surveys. The treed swamp areas will not be impacted by proposed development.

Amphibian breeding habitat associated with woodland (treed swamp) communities will not be impacted by this proposed development. The preservation of wetland and woodland habitats within the subject property, and the buffering of such features, will continue to allow for some movement of amphibians between breeding habitat and other areas which they may occupy over a portion of their life stages.

4.5 Other Wildlife Considerations

Breeding bird habitat will generally be maintained subsequent to the development of these lands, given the preservation of treed habitat and most other natural vegetation communities. It is noted that many of the documented bird species are disturbance-tolerant and will continue to thrive within an urbanized setting.

5.0 REVIEW AND COMMENTS ON DEVELOPMENT PLANS

5.1 Overview

A Functional Servicing Report has been prepared for this project by Schaeffers (2022). Michalski Nielsen Associates Limited have reviewed and provided input to that document.

5.2 Development Footprint

We have reviewed the development footprint and are satisfied that this appropriately respects the boundaries of the identified NHS, and allows for the proper implementation of all required buffers. Through much of the development, grading limits are kept within the development limits. There are, however, several areas where grading is being proposed beyond the rear yard limits within portions of

buffers adjacent to wooded areas, with the majority of such grading being outside of the drip line; while such grading within the buffer, but outside of the staked dripline, will need to be undertaken with care, it can be completed without negative impacts on these woodland areas. There are two small areas adjacent to a mixed forest community (FOM) where grading is presently proposed to extend just into the dripline of what is generally a young forest edge. These grading limits need to be carefully examined as part of the detailed design and, if possible, adjusted such that any such encroachment is avoided. If that is not possible, it is reasonable that an offsetting strategy, which involves planting of trees within adjacent buffer areas, be implemented.

5.3 Stormwater Management Facilities

As noted in Schaffers' Functional Servicing Report (2022), the stormwater design criteria for the subject lands were established through the Salem SIS report. There are six separate catchment areas (101 to 106) within the lands which are the subject of this report, with a seventh catchment area (107) associated with the mixed use node adjacent to Essa Road, which is to follow a separate Site Plan Approval process at a later date. The catchment areas of relevance to our EIS range in size from 1.32 ha to 10.63 ha. Storm flows from three of the four largest catchment areas are to be directed to stormwater management ponds, which will provide quantity, quality and erosion control, with additional Low Impact Development (LID) measures being implemented to ensure water balance, volume control and phosphorus control. Stormwater from the other three catchments, which have drainage areas ranging between 1.32 ha and 3.31 ha in size, is to be captured in super pipes which provide quantity and erosion control, with Jellyfish systems to be used for quality control and with water balance, volume control and phosphorus control to be achieved through additional LID measures. Stormwater management facilities are generally located within the established limits of development, although an infiltration storage tank in association with catchment 104 is to be located within a buffer (but within an area that is presently an agricultural field); it is our opinion that this tank can be located such that it does not negatively impact the protected Natural Heritage System or the intended long-term benefits of the buffer.

The release of storm flows from the six relevant catchments to this EIS has appropriately considered the nature of pre-development flows into receiving streams, under a variety of storm events up to and including the 100 year storm, and the safe release of all flows to these receivers.

5.4 Erosion and Sediment Control

A detailed erosion and sediment control plan has not yet been prepared, however it is our understanding that these plans are to include:

- double row silt fence, with straw bales in between the two rows, around the site perimeter, including stormwater blocks, with such fencing to also be installed around areas of temporary topsoil stockpiling on site;
- the additional use of cut off swales, sediment traps and Filtrexx Silksoxx in conveying stormwater runoff through the property;

- temporary sedimentation basins which include outfall protection and turbidity control; and
- mud mats for access roads.

Collectively, these components of an erosion and sediment control plan will provide for a robust level of protection against off site impacts. It is important that such a plan be developed in advance of construction and that the various elements of this plan be certified upon installation, properly monitored over the duration of the works, and repaired immediately whenever any deficiencies are identified.

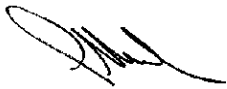
5.5 Other Aspects of Site Servicing

Michalski Nielsen Associates Limited has reviewed other aspects of site servicing, with water and sewer services to be supplied from Salem Road and/or from other developed lands to the southeast. All such servicing is to follow existing or proposed roads Michalski Nielsen Associates Limited has reviewed those components of site servicing and have no concerns that they will interfere with the protection of the NHS within or adjacent to this property.

Yours truly,

MICHALSKI NIELSEN ASSOCIATES LIMITED

Per:



Gord Nielsen, M.Sc.
Ecologist,
President

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APPENDIX A – BREEDING BIRD SURVEY

Appendix A. Breeding Birds of 16033108 301 McKay Rd. West and 259 Salem Rd.								
Common Name	Scientific Name	Status				Number of Pairs/Territories		Notes
		National Species at Risk COSEWIC ^a	Species at Risk in Ontario Listing ^a	Provincial breeding season SRANK ^b	Area-sensitive (OMNR) ^c	301 McKay Rd West	259 Salem Rd	
Hooded Merganser	<i>Lophodytes cucullatus</i>			S5			1	
Red-tailed Hawk	<i>Buteo jamaicensis</i>			S5			1	
Wild Turkey	<i>Meleagris gallopavo</i>			S5			7	
Common Moorhen	<i>Gallinula chloropus</i>			S4		1		
Mourning Dove	<i>Zenaidura macroura</i>			S5			1	
Hairy Woodpecker	<i>Picoides villosus</i>			S5	A		1	
Eastern Wood-Pewee	<i>Contopus virens</i>	SC		S4		2		
Willow Flycatcher	<i>Empidonax traillii</i>			S5		1	1	
Great Crested Flycatcher	<i>Myiarchus crinitus</i>			S4		1	2	
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	S4			1	Foraging
Blue Jay	<i>Cyanocitta cristata</i>			S5		1	3	
American Crow	<i>Corvus brachyrhynchos</i>			S5		2		
Black-capped Chickadee	<i>Poecile atricapillus</i>			S5		2		
Red-breasted Nuthatch	<i>Sitta canadensis</i>			S5	A		1	
House Wren	<i>Troglodytes aedon</i>			S5			1	
American Robin	<i>Turdus migratorius</i>			S5		1	3	
European Starling	<i>Sturnus vulgaris</i>			SE		6	13	
Red-eyed Vireo	<i>Vireo olivaceus</i>			S5		4	11	
Yellow Warbler	<i>Setophaga petechia</i>			S5		1	2	
Blackpoll Warbler	<i>Setophaga striata</i>			S4		1		Migrant
American Redstart	<i>Setophaga ruticilla</i>			S5	A	1		
Ovenbird	<i>Seiurus aurocapillus</i>			S4	A		3	
Northern Waterthrush	<i>Parkesia noveboracensis</i>			S5			2	
Common Yellowthroat	<i>Geothlypis trichas</i>			S5		1	1	
Northern Cardinal	<i>Cardinalis cardinalis</i>			S5		1	3	
Indigo Bunting	<i>Passerina cyanea</i>			S4			2	
Vesper Sparrow	<i>Poecetes gramineus</i>			S4		1		
Song Sparrow	<i>Melospiza melodia</i>			S5		6	8	
Swamp Sparrow	<i>Melospiza georgiana</i>			S5				
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			S4		8	2	
Common Grackle	<i>Quiscalus quiscula</i>			S5		2	3	
Baltimore Oriole	<i>Icterus galbula</i>			S4		1		
American Goldfinch	<i>Carduelis tristis</i>			S5		2	3	
Field Work Conducted On:	Date	Temp (C)	Wind speed (km/h)	Cloud cover (%)	Start time	End time	Level of effort (h:min)	
Site visit 1	21-May-22	15	4	60	6:10	10:25	4h 15m	
Site visit 2	11-Jun-22	12	11	90	6:10	10:05	3h 55m	
Site visit 3	01-Jul-22	20	0	100	8:10	8:20	0h 10m	
Location 1 -	301 McKay Rd West							
Location 2 -	259 Salem Rd							
Number of Species:		34						
Number of (provincial and national) Species at Risk:		2						
Number of S1 to S3 (provincially rare) Species:		0						
Number of Area-sensitive Species:		4						
Location 1	301 McKay Rd West							
Number of Species:		23						
Number of (provincial and national) Species at Risk:		1						
Number of S1 to S3 (provincially rare) Species:		0						
Number of Regionally Rare Species:		0						
Number of Area-sensitive Species:		1						
Location 2 -	259 Salem Rd							
Number of Species:		27						
Number of (provincial and national) Species at Risk:		2						
Number of S1 to S3 (provincially rare) Species:		0						
Number of Regionally Rare Species:		0						
Number of Area-sensitive Species:		3						
KEY								
^a COSEWIC = Committee on the Status of Endangered Wildlife in Canada								
^a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)								
END = Endangered, THR = Threatened, SC = Special Concern								
^b SRANK (from Natural Heritage Information Centre) for breeding status if:								
S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure								
SZB (breeding migrants or vagrants) and SR (reported as breeding, but no persuasive documentation)								
SE (exotic, i.e. non-native)								
^c Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices								

APPENDIX B – SPECIES AT RISK SURVEY

Appendix B: Species at Risk Screening.

NAME	SARA STATUS	SARO	COSEWIC	SCHEDULE	S-RANK	HABITAT REQUIREMENTS	SOURCE OF RECORD	POTENTIAL HABITAT PRESENT (Y/N)	RATIONALE	POTENTIAL IMPACTS AND MITIGATION
AVIFAUNA										
Bank Swallow (<i>Riparia riparia</i>)	THR	THR	THR	1	S4B	The Bank Swallow is threatened by loss of breeding and foraging habitat, destruction of nesting habitat and widespread pesticide use. Bank swallows are small songbirds with brown upperparts, white underparts and a distinctive dark breast band. It averages 12 cm long and weighs between 10 and 18 grams. The swallow can be distinguished in flight from other swallows by its quick, erratic wing beats and its almost constant buzzy, chattering vocalizations. They nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposit, including banks of rivers and lakes, active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs (Ministry of Natural Resources and Forestry, 2014).	OBBA	N	Suitable habitat is not present on the Subject Property.	None.
Bobolink (<i>Dolichonyx oryzivorus</i>)	THR	THR	THR	1	S4B	The Bobolink is found in grasslands and hayfields, and feeds and nests on the ground. This species is widely distributed across most of Ontario; however, are designated at risk because of rapid population decline over the last 50 years (Ministry of Natural Resources and Forestry, 2014). The historical habitat of the bobolink was tallgrass prairie and other natural open meadow communities; however, as a result of the clearing of native prairies and the post-colonial increase in agriculture, bobolinks are now widely found in hayfields. Due to their reproductive cycle, nesting habits, and use of agricultural areas, bobolink nests and young are particularly vulnerable to loss as a result of common agricultural practices (i.e. first cut hay).	OBBA and NHIC	Y	Potential habitat in the agricultural field, but no individuals recorded during breeding bird surveys.	None.
Eastern Meadowlark (<i>Sturnella magna</i>)	THR	THR	THR	1	S4B	The Eastern Meadowlark is a bird that prefers pastures and hayfields, but is also found to breed in orchards, shrubby fields and human use areas such as airports and roadsides. Eastern meadowlarks can nest from early May to mid-August, in nests that are built on the ground and well-camouflaged with a roof woven from grasses. The decline in population of these species is thought to be at least partially related to habitat destruction and agricultural practices (Ministry of Natural Resources and Forestry, 2014).	OBBA and NHIC	Y	Potential habitat in the agricultural field, but no individuals recorded during breeding bird surveys.	None.
Eastern Wood-Pewee (<i>Contopus virens</i>)	SC	SC	SC	1	S4B	The Eastern Wood-pewee is classified as a species of special concern by COSSARO. Their population has been gradually declining since the mid-1960’s (The Cornell Lab of Ornithology, 2015). The Eastern Wood-pewee is a “flycatcher”, a bird that eats flying insects, that lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It prefers intermediate-age forest stands with little understory vegetation. Threats to the population are largely unknown; however, causes may include loss of habitat due to urban development and decreases in the availability of flying insect prey (Ministry of Natural Resources and Forestry, 2014).	Recorded during breeding bird surveys	Y	Recorded during breeding bird surveys.	The primary mitigation is for the protection of nesting birds. With appropriate mitigation measures (e.g. conduct selective tree removals outside of breeding bird season), no impacts to individuals are anticipated. Tree removals along forest edge areas of the redevelopment shall occur between late August and late April, which is outside of the breeding and nesting season (note: restrictive windows for SAR bats apply)

NAME	SARA STATUS	SARO	COSEWIC	SCHEDULE	S-RANK	HABITAT REQUIREMENTS	SOURCE OF RECORD	POTENTIAL HABITAT PRESENT (Y/N)	RATIONALE	POTENTIAL IMPACTS AND MITIGATION
Wood Thrush (<i>Hylocichla mustelina</i>)	THR	SC	THR	1	S4B	The Wood Thrush is a species of Special Concern because of habitat degradation or destruction by anthropogenic development. The Wood Thrush is a medium-sized songbird, generally rusty-brown on the upper parts with white under parts and large blackish spots on the breast and sides, and about 20 cm long. The Wood Thrush forages for food in leaf litter or on semi-bare ground, including larval and adult insects as well as plant material. They seek moist stands of trees with well-developed undergrowth in large mature deciduous and mixed (conifer-deciduous) forests. The Wood Thrush flies south to Mexico and Central America for the winter (Ministry of Natural Resources and Forestry, 2014).	OBBA and NHIC	Y	Potential habitat in the forested areas on the subject property, but no individuals recorded during breeding bird surveys.	None.
VASCULAR PLANTS										
Butternut (<i>Juglans cinerea</i>)	END	END	END	1	S2?	The butternut is designated as endangered by COSSARO and is tracked by the NHIC as a species at risk. The tree is federally regulated by the Species at Risk Act (2002). Butternut belongs to the walnut family and produces edible nuts which are a preferred food source for wildlife. The range of butternut trees is south of the Canadian Shield on soils derived from calcium rich limestone bedrock. Butternut trees, which at one time were much more common to the south extending to the northern aspect of zone 6E, have been declining due to factors including forest loss and disease. Butternut trees suffer from a highly transmissible fungal disease called butternut canker. Butternut canker is causing very rapid decline in this tree species across its native range. The fungal disease is easily transmitted by wind and is very difficult to prevent. Trees often die within a few years of infection by butternut canker (Ministry of Natural Resource and Forestry, 2014).	Professional Experience	Y	Potential habiat present. Two seedlings and one sapling were identified in woodland areas of the property.	A Butternut Health Assessment is being submitted for identified specimens.
MAMMALS										
Tri-colored Bat (Eastern Pipistrelle) (<i>Perimyotis subflavus</i>)	END	END	END	1	S3?	The eastern pipistrelle is a small bat that is widely distributed in eastern North America and whose range extends north to southern Ontario. The eastern pipistrelle is rare in this region of Ontario which is at the northernmost limit of the natural range for the species. These bats prefer to nest in foliage, tree cavities and woodpecker holes, and are occasionally found in buildings; though this is not their preferred habitat. Winter hibernation takes place in caves, mines and deep crevices. Eastern pipistrelles feed primarily on small insects and prefer an open forest habitat type in proximity to water (University of Michigan Museum of Zoology, 2004).	Professional Experience	Y	Potential habitat in the forested areas on the Subject Property.	Low impacts expected. Mitigation: As SAR bats are typically active between early April and September 30, and hibernate in caves outside of that period, tree removal should be carried out between October 1st to March 31st. This will avoid harm or impacts to individuals. Additional mitigation
Eastern Small-footed Myotis (<i>Myotis leibii</i>)	No Status	END	No Status	Schedu	S2S3	The eastern small-footed myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Eastern small-footed bat’s fur has black roots and shiny light brown tips, giving it a yellowish-brown appearance. Its face mask, ears and wings are black, and its underside is grayish-brown, about 8 cm long in size and weighs 4-5 grams. In the spring and summer, eastern small-footed bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. They change their roosting locations daily and hunt at night for insects to eat, including beetles, mosquitos, moths, and flies. They hibernate in winter, often in caves and abandoned mines. They can be found from south of Georgian Bay to Lake Erie and east to the Pembroke area, and choose colder and drier sites (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y	Potential habitat in the forested areas on the Subject Property.	

NAME	SARA STATUS	SARO	COSEWIC	SCHEDULE	S-RANK	HABITAT REQUIREMENTS	SOURCE OF RECORD	POTENTIAL HABITAT PRESENT (Y/N)	RATIONALE	POTENTIAL IMPACTS AND MITIGATION
Little Brown Myotis (<i>Myotis lucifugus</i>)	END	END	END	1	S4	Little brown myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Little brown bats have glossy brown fur and usually weigh between four and 11 grams. Bats are nocturnal. During the day they roost in trees and buildings. They often select attics, abandoned buildings and barns for summer colonies where they can raise their young. Little brown bats hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing – an ideal environment for the fungus to grow and flourish. The syndrome affects bats by disrupting their hibernation cycle, so that they use up body fat supplies before the spring when they can once again find food sources (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y	Potential habitat in the forested areas on the Subject Property.	measures such a the intallation of bat boxes may be needed. Consultation with MECP will be required.
Northern Myotis (<i>Myotis septentrionalis</i>)	END	END	END	1	S3	The northern long-eared myotis, a bat, are an endangered species threatened by a disease known as white nose syndrome, caused by a fungus from Europe. Northern long-eared bats have dull yellow-brown fur with pale grey bellies. They are approximately eight cm long, with a wingspan of about 25 cm, and usually weigh six to nine grams. Northern long-eared bats can be found in boreal forests, roosting under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April, most often in caves or abandoned mines (Ministry of Natural Resources and Forestry, 2014).	Professional Experience	Y	Potential habitat in the forested areas on the Subject Property.	
FISH										
N/A										
OTHER										
Monarch Butterfly (<i>Danaus plexippus</i>)	SC	SC	END	1	S2N,S4B	The monarch is an orange and black butterfly with small white spots and is classified as a species of special concern by COSSARO. The monarch relies on milkweed plants as a food source for growing caterpillars, but the adult butterflies forage in diverse habitats for nectar from wildflowers. The greatest threat to the monarch is loss of overwintering habitat in Mexico. Other threats include use of pesticides and herbicides throughout its range (Ministry of Natural Resources and Forestry, 2014).	OBA	Y	Milkweed found throughout the meadow and agricultural areas.	Potential habit is present on the property as milkweed plants were observed, but no Monarch butterflies were recorded. Retain milkweed plants where feasible on the subject property.

Notes:

SC - Special Concern

THR - Threatened

END - Endangered

S1 - Extremely rare in Ontario

S2 - Very rare in Ontario

S3 - Rare to uncommon in Ontario

S4 - Considered to be common in Ontario

S5 - Species is widespread in Ontario

SH - Possibly extirpated

S#S# - Indicates insufficient information exists to assign a single rank.

S#? - Indicates some uncertainty with the classification due to insufficient data.

S#N - Nonbreeding

S#B - Breeding

APPENDIX C – SIGNIFICANT WILDLIFE SCREENING

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes and Species Observations
Seasonal Concentration Areas of Animals					
Waterfowl Stopover and Staging Areas (Terrestrial)	Ducks	CUM + CUT ecosites	Fields with sheet-water flooding mid-March to May	N	Suitable habitat not present on the subject property.
Waterfowl Stopover and Staging Area (Aquatic)	Ducks, Geese	Ponds, Lakes, Inlets, Marshes, Swamps, Shallow Water Ecosites	Sewage & SWM ponds not SWH. Reservoir managed as a large wetland or pond/lake qualifies.	N	Suitable habitat not present on the subject property.
Shorebird Migratory Stopover Area	Shorebirds	Beaches, Dunes, Meadow Marshes	Shorelines. Sewage treatment ponds and storm water ponds not SWH.	N	Suitable habitat not present on the subject property.
Raptor Wintering Area	Eagles, Hawks, Owls	Hawks/Owls: Combination of both Forest and Cultural Ecosites Bald Eagle: Forest or swamp near open water (hunting ground)	Raptors: >20ha, with a combination of forest and upland. Meadow (>15ha) with adjacent woodlands. Eagles: open water, large trees & snags for roosting.	N	Sufficient suitable habitat not present on the subject property.
Bat Hibernacula	Big Brown Bat, Tri-coloured Bat	Caves, Crevices, mines, karsts	Buildings and active mine sites not SWH.	N	Suitable habitat not present on the subject property.
Bat Maternity Colonies	Big Brown Bat, Silver-haired Bat	Decidious or mixed forests and swamps.	Mature deciduous and mixed forests with >10/ha cavity trees >25 cm DBH.	Potential	Suitable habitat in the forested communities on the subject property.
Turtle Wintering Area	Turtles (Midland, N. Map, Snapping)	SW, MA, OA, SA, FEO, BOO (requires open waters)	Free water beneath ice. Soft mud substrate. Permanent water bodies, large wetlands, bogs, fens with adequate DO.	Potential	Some potential habitat in the swamp and pond communities, but turtles weren't recorded during surveys and targeted surveys weren't completed.
Reptile Hibernaculum	Snakes	Snakes: Any ecosite (esp. w/ rocky areas), other than very wet ones. Five-lined Skink: FOD and FOM, FOC1, FOC3 - with rock outcrops	Access below frost line: burrows; rock crevices, piles or slopes, stone fences or foundations. Conifer/shrubby swamps/swales, poor fens, depressions in bedrock w/ accumulations of sphagnum moss or sedge hummock ground cover.	N	Suitable habitat not present on the subject property.
Colonially-nesting Bird Breeding Habitat (Bank and Cliff)	Cliff Swallow, N. Rough-winged Swallow	Banks, sandy hills/piles, pits, slopes, cliff faces, bridge abutments, silos, barns.	Exposed soil banks, not a licensed/permitted aggregate area or new man-made features (2 yrs).	N	Suitable habitat not present on the subject property.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes and Species Observations
Colonially-nesting Bird Breeding Habitat (Tree/Shrubs)	Great Blue Heron, Black-crowned NightHeron, Great Egret, Green Heron	SWM2, SWM3, SWM5, SWM6, SWD1 to SWD7, FET1	Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and emergents may be used. Nests in trees are 11 - 15 m from ground, near tree tops.	N	Potential habitat is not present on the subject property, but the associated bird species weren't recorded.
Colonially-nesting Bird Breeding Habitat (Ground)	Herring Gull, Great Black-backed Gull, Little Gull, Ring-billed Gull, Common Tern, Caspian Tern, Brewer's Blackbird	Gulls/Terns: Rocky island or peninsula in lake or river. Brewer's Blackbird: close to watercourses in open fields or pastures with scattered trees or shrubs.	Gulls/Terns: islands or peninsulas with open water or marshy areas. Brewers Blackbird colonies: on the ground in low bushes close to streams and irrigation ditches.	N	Suitable habitat not present on the subject property.
Migratory Butterfly Stopover Area	Painted Lady, Red Admiral, Special Concern: Monarch	Combination of open (CU) and forested (FO) ecosites (need one from each).	≥10 ha, located within 5 km of Lake Ontario. Undisturbed sites, with preferred nectar species.	N	Suitable habitat not present on the subject property.
Landbird Migratory Stopover Areas	All migratory songbirds. All migrant raptor species.	Forest (FO) and Swamp (SW) ecosites	Woodlots >10 ha within 5 km of Lake Ontario. If multiple woodlands are along the shoreline, those <2 km from L. Ontario are more significant.	N	Suitable habitat not present on the subject property.
Deer Yarding Areas	White-tailed Deer	Mixed or Conifer ecosites	Determined by MNRF - no studies	N	Suitable habitat not present on the subject property.
Deer Winter Congregation Areas	White-tailed Deer	Mixed or Conifer ecosites	Determined by MNRF - no studies	N	Suitable habitat not present on the subject property.
Rare Vegetation Communities					
Cliffs and Talus Slopes		TAO, TAS, CLO, CLS, TAT, CLT e.g., Niagara Escarpment (contact NEC)	Cliff: near vertical bedrock >3m Talus Slope: coarse rock rubble at the base of a cliff	N	Suitable habitat not present on the subject property.
Sand Barren		SBO1, SBS1, SBT1	Sand Barrens >0.5 ha. Vegetation can vary from patchy and barren to tree covered, but <60%. <50% vegetation cover are exotic species.	N	Suitable habitat not present on the subject property.
Alvar	<i>Carex crawei</i> , <i>Panicum philadelphicum</i> , <i>Eleocharis compressa</i> , <i>Scutellaria parvula</i> , <i>Trichostema brachiatum</i> , Loggerhead Shrike	ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2	Alvar >0.5 ha. Need 4 of the 5 Alvar Indicator Spp. <50% vegetation cover are exotic species.	N	Suitable habitat not present on the subject property.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes and Species Observations
Old Growth Forest	Trees >140 yrs; heavy mortality = gaps. Multi-layer canopy, lots of snags and downed logs	FOD, FOC, FOM, SWD, SWC, SWM	Woodland areas ≥30 ha with a ≥10 ha interior habitat, assuming a 100 m buffer at edge of forest.	N	Suitable habitat not present on the subject property.
Savannah	Prairie Grasses w/ trees	TPS1, TPS2, TPW1, TPW2, CUS2	A Savannah is a <u>tallgrass prairie</u> habitat that has tree cover of 25 – 60%. <50% cover of exotic species.	N	Suitable habitat not present on the subject property.
Tallgrass Prairie	Prairies Grasses dominate	TPO1, TPO2	An <u>open Tallgrass Prairie</u> habitat has < 25% tree cover. Less than 50% cover of exotic species.	N	Suitable habitat not present on the subject property.
Other Rare Vegetation Communities		Provincially Rare S1 - S3 veg. comm. are listed in Appendix M of SWHTG.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	N	Suitable habitat not present on the subject property.
Specialized Habitat for Wildlife					
Waterfowl Nesting Area	Ducks	Upland habitats adjacent to: MAS1 to MAS3, SAS1, SAM1, SAF1, MAM1 to MAM6, SWT1, SWT2, SWD1 to SWD4 (>0.5 ha open water wetlands, alone or collectively).	Extends 120 m from a wetland or wetland complex. Upland areas should be at least 120 m wide. Wood Ducks and Hooded Mergansers use cavity trees (>40 cm dbh).	Potential	Potential habitat is present in the MAM community.
Bald Eagle & Osprey Nesting, Foraging and Perching Habitat	Osprey, Bald Eagle	FOD, FOM, FOC, SWD, SWM, SWC directly adjacent to riparian areas	Nesting areas are associated with waterbodies along forested shorelines, islands, or on structures over water.	N	Suitable habitat not present on the subject property.
Woodland Raptor Nesting Habitat	Barred Owl. Hawks: N. Goshawk, Cooper's, Sharp-shinned, Red-shouldered, Broad-winged.	Forests (FO), swamps (SW), and conifer plantations	>30 ha with > 10 ha interior habitat.	N	Potential habitat present, but the forested areas on the subject property are below the forest size criteria.
Turtle Nesting Areas	Midland Painted Turtle Special Concern: Snapping Turtle, Northern Map Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within: MAS1 to MAS3, SAS1, SAM1, SAF1, BOO1	Nest sites within open sunny areas with soil suitable for digging. Sand and gravel beaches.	N	Suitable habitat not present on the subject property.
Seeps and Springs	Wild Turkey, Ruffed Grouse, Spruce Grouse, White-tailed Deer, Salamander spp.	Seeps/Springs are areas where ground water comes to the surface.	Any forested area within the headwaters of a stream/river system. (2 or more confirms SWH type).	N	Suitable habitat not present on the subject property.
Amphibian Breeding Habitat (Woodland)	Woodland Frogs and Salamanders	FOC, FOM, FOD, SWC, SWM, SWD	Open water wetlands, pond or woodland pool of >500 m ² within or adjacent to wooded areas. Permanent ponds or holding water until mid-July preferred.	Y	Suitable habitat is present on the subject property and three of the associated species were recorded.

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes and Species Observations
Amphibian Breeding Habitat (Wetlands)	Toads, Frogs, and Salamanders	SW, MA, FE, BO, OA and SA. Typically isolated (>120m) from woodland ecosites, however larger wetlands may be adjacent to	Open water wetland ecosites >500m ² isolated from woodland ecosites with high species diversity. Permanent water with abundant vegetation for bullfrogs.	Potential	While the two areas of open water ponding on the subject property are small, they provide potential habitat and could qualify.
Woodland Area-Sensitive Bird Breeding Habitat	Birds (area-sensitive species)	FOC, FOM, FOD, SWC, SWM, SWD	Large mature (>60 years) forest stands/woodlots >30 ha. Interior forest habitat >200m from forest edge.	N	The woodland size <30 ha, and no associated area-sensitive bird species recorded, so it has not been considered SWH.
Habitat of Species of Conservation Concern					
Marsh Bird Breeding Habitat	Wetland Birds	MAM1 to MAM6, SAS1, SAM1, SAF1, FEO1, BOO1 Green Heron: SW, MA and CUM1	Wetlands with shallow water and emergent vegetation. Gr. Heron @ edges of these types w/ woody cover.	N	Suitable habitat is prsent, but insufficient numbers of wetland birds were recorded.
Open Country Bird Breeding Habitat	Upland Sandpiper, Grasshopper Sparrow, Vesper Sparrow, N. Harrier, Savannah Sparrow, Short-eared Owl (SC)	CUM1, CUM2	Grassland/meadow >30 ha. Not being actively used for farming. Habitat established for 5 years or more.	N	Suitable habitat not present on the subject property.
Shrub/Early Successional Bird Breeding Habitat	Brown Thrasher + Clay-coloured Sparrow (indicators) , Field Sparrow, Black-billed Cuckoo, E. Towhee, Willow Flycatcher, Yellow-breasted Chat, Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2	Large field areas succeeding to shrub and thicket habitats > 10 ha. Areas not actively used for farming in the last 5 years.	N	Suitable habitat not present on the subject property. CUT1 community does not meet the size criteria.
Terrestrial Crayfish	Chimney or Digger Crayfish; Devil Crayfish or Meadow Crayfish	MAM1 to MAM6, MAS1 to MAS3, SWD, SWT, SWM. CUM1 sites with inclusions of the aforementioned.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish (typc. protected by wetland setbacks).	N	Potential habitat is present on the subject property, but no chimneys were recorded during surveys on the property.
Special Concern and Rare Wildlife Species	Any species of concern or rare wildlife species	Any ELC code.	Presence of species of concern or rare wildlife species.	N	2 pairs of Eastern Wood-pewee were recorded during breeding bird surveys. Presence of two pairs of Eastern Wood-Pewee is not sufficient to warrant SWH status.
Animal Movement Corridors					

SWH Type	Associated Species	Associated ELC Ecosites	Habitat Criteria	Presence (Y/N)	Additional Notes and Species Observations
Amphibians	Amphibians	all ecosites assoc. w/ water	When Breeding Habitat - wetland confirmed	Y	Candidate habitat as breeding habitat - wetland is confirmed from amphibian breeding surveys.
Deer Movement	White-tailed Deer	all forested ecosites	When Deer Wintering Habitat confirmed	N	Suitable habitat not present on the subject property.
Exceptions for Ecoregion 6E					
Mast Producing: 6E-14	Black Bear	Forested Ecosites	>30 ha w/ mast producing species: Cherry (berries), Oak, Beech (nuts).	N	Suitable habitat not present on the subject property.
Leks: 6E-17	Sharp-tailed Grouse	CUM, CUS, CUT	Grassland/meadow >15 ha adjacent to shrublands, >30 ha adjacent to woodlands. Low agricultural intensity.	N	Suitable habitat not present on the subject property.