

ENVIRONMENTAL IMPACT STUDY

500 Salem Road

Part of South Half of Lot 1

Concession 11

Geographic Township of Innisfil

City of Barrie

County of Simcoe

Prepared for LSR Salem Inc.

October 2022 (Revised January 2023)



In association with



Azimuth Environmental Consulting Inc.

CUNNINGHAM ENVIRONMENTAL ASSOCIATES

Natural Resources Consultants

January 10, 2023

File No. 2019

Mr Tim Gilman
LSR Salem Inc.
12343 County Road 27
Midhurst, ON L9X 0M1

Re: ENVIRONMENTAL IMPACT STUDY, 500 Salem Road, Part of South Half of Lot 1, Concession 11, Geographic Township of Innisfil, City of Barrie, County of Simcoe: Our File 2019

Dear Mr. Gilman:

Enclosed is our report entitled **ENVIRONMENTAL IMPACT STUDY, 500 Salem Road, Part of South Half of Lot 1, Concession 11, Geographic Township of Innisfil, Township of Innisfil, City of Barrie, County of Simcoe: Our File 2019 (January 10, 2023)**.

Should you have any questions or comments, please contact the undersigned.

Sincerely,

CUNNINGHAM ENVIRONMENTAL ASSOCIATES



[digital signature]

David G. Cunningham, Spec. Hon. B.Sc. (Environmental Sciences)
Principal/Owner

c.c. Tyler Kwall, Intermediate Planner - Innovative Planning Solutions
Dr. Scott Tarof, Terrestrial Ecologist - Azimuth Environmental Consultants Inc.

1 INTRODUCTION

1.1 Background

Cunningham Environmental Associates (CEA) in association with Azimuth Environmental Consulting Inc. (Azimuth) were retained in June 2020 by LSR Salem Inc. to identify, characterize, inventory, assess/evaluate and document the vegetation resources (vegetation communities, floristics), wildlife and wildlife habitat resources, flora and fauna Species at Risk (SAR), and aquatic resources on a mainly vacant parcel of land (“property”), located at the municipal address of 500 Salem Road, in the City of Barrie. The property lies just east of the intersection of Salem Road and County Road 27 and within the approved Salem Secondary Plan (SSP) area. For the general location of the property within the local road context see **Figure 1**.

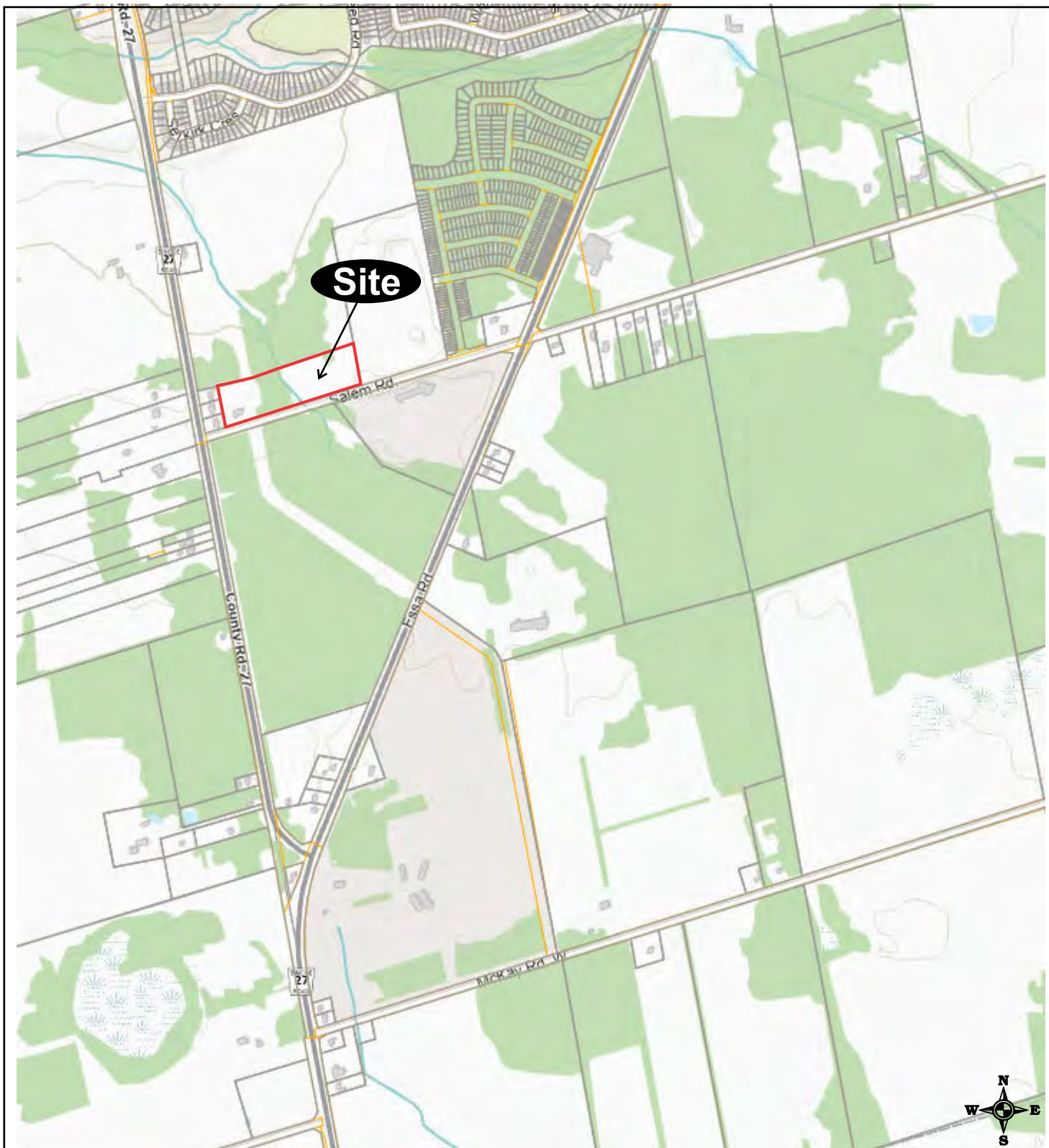
1.2 Subject Property Location

The property is owned by LSR Salem Inc. and fronts onto the north side of Salem Road approximately 100 m east of County Road 27. The municipal address is 500 Salem Road. As shown on **Figure 2**, the legal description is Part of South Half of Lot 1, Concession 11, Geographic Township of Innisfil, Town of Innisfil, County of Simcoe (Lloyd & Purcell 2021). The property covers an area of 3.33 hectares (8.23 acres), with a frontage on Salem Road of 340.3m (1116.5ft). The entire property is located within part of the City of Barrie Salem Secondary Plan (SSP) (City of Barrie 2014). The entire property is also regulated by the Nottawasaga Valley Conservation Authority (NVCA) under Ontario Regulation 172/06 (Province of Ontario 2006).

The west portion (West Parcel) of the property contains an as-built detached two-storey house, with an attached garage, interlock driveway, manicured grassed front yard and back yard, and accessory sheds. This part of the property is privately serviced with a well, septic tank and sewage tile bed. There is dry-fresh mixed meadow/fresh-moist mixed meadow along the north edge of the manicured grassed back yard. Contiguous with the meadow to the north property edge are wetland features (known as “Other Wetland” or “Non-Provincially Significant Wetland” or Non-PSW). This portion of the property abuts the western edge of TransCanada Pipeline (TCPL) easement.

The eastern portion of the property consist of a dry-fresh mixed meadow in conjunction with graded fill, a thin edge of a white cedar-hardwood stand and a narrow stand of white cedar-Manitoba maple mixed woodland (East Parcel).

The intervening portion contains part of the TCPL easement, along with a mosaic of “Other Wetland” features, all of which lie within the City of Barrie Official Plan (2022) designation known as a combination of Environmental Protection Area (EPA), Natural Heritage System and Natural Linkage Area.



<http://maps.simcoe.ca/public/>

Scale 1:NTS

Figure 1. Subject Property Location

LSR Salem Road

500 Salem Road

Part of South Half Lot 2, Concession 1

Geographic Township of Innisfil

Town of Innisfil

County of Simcoe

 subject property



Cunningham Environmental Associates

1.3 Purpose and Scope of the Study

It is the intent of the Owner to sever the West Parcel through Consent to Sever and Minor Variance applications (Innovative Planning Solutions 2022a). The Owner also intends to develop part of the East Parcel through a Zoning By-Law Amendment - ZBA & Draft Plan of Subdivision as residential, comprised of 34 townhomes, with a south-north street to extend off-site to the north onto other approved residential lands (Innovative Planning Solutions 2022b).

As the subject property lies within the approved Salem Secondary Plan (SSP), the City of Barrie Development Services Department required that a Conformity Review Application be submitted (Innovative Planning Solutions 2021, CEA 2022). The intent of the Natural Heritage Features Conformity Review (CEA 2022) report was to address the NVCA and City of Barrie conformity review comments.

The Conformity Review package includes Guidelines for Conformity Review Applications Hewitt's & Salem Secondary Plan Areas and a Conformity Review Application Form Official Plan Amendment, Zoning By-law Amendment and Draft Plan of Subdivision Applications Within Secondary Plan Areas (City of Barrie 2021a). The Conformity Review has been completed, and it is our understanding that the Owner will submit the required reports in regards to a ZBA & Draft Plan of Subdivision submission (City of Barrie 2021b). As the Owner intends to sever the as-built (detached single-family dwelling) portion of the property that abuts the TCPL easement, Consent to Sever and Minor Variance applications (**West Parcel**) have been applied for which include EPA land feature dedications (wetlands) and Open Space land dedication (TCPL) to the City of Barrie. These applications are currently under review by the City and the applicants are now submitting ZBA & Draft Plan of Subdivision applications for the **East Parcel** townhomes.

Therefore, it is the intent of this EIS to firstly address both the Consent to Sever and Minor Variance applications, wetland features dedication and TCPL dedication to City of Barrie, known herein as the **West Parcel (Part A)** and to secondly address the ZBA & Draft Plan of Subdivision applications, known herein as the **East Parcel (Part B)**. This EIS has been prepared by CEA and Azimuth, with inputs as warranted from the required technical reports, drawings and figures prepared to-date by other team consultants.

1.4 Project Team

This report was written and edited by **David G. Cunningham**, Spec. Hon. B.Sc. (Environmental Sciences) – Senior Ecologist/Principal & Project Manager – Cunningham Environmental Associates (CEA) in regards to: background information review and collection, terrestrial and wetland vegetation communities, floristics, and flora Species at Risk (SAR). Additional reporting inputs pertaining to wildlife and wildlife habitat, fauna SAR assessment, Candidate Significant Wildlife Habitat (SWH) assessment, analysis and editing was provided by Azimuth staff: **Lisa A. Moran**, B.Sc.Env. – Terrestrial Ecologist and **Dr. Scott Tarof**, PhD, MSc, HBSc. – Terrestrial Ecologist.

2 STUDY APPROACH & METHODS

2.1 **Background Information Collection and Review**

Digital sources were accessed in 2020 and 2021 and reviewed to garner background information of the natural heritage features – vegetation and floristics (woodland, wetland, hedgerows, thickets) and the wildlife and wildlife habitats on the property and abutting the property. Digital sources included but were not limited to the Natural Heritage Information Centre (NHIC), Land Information Ontario (LIO), County of Simcoe, City of Barrie and the Salem Secondary Plan Subwatershed Impact Study (Schaeffers & Associates Ltd *et al.* 2017).

Prior to, during and after the site reconnaissance and inventories undertaken in 2020, 2021 and 2022, the following on-line data sources and published reports were collected and reviewed.

Sources included but were not limited to the following:

- **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);
- **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 Salem Secondary Plan** (City of Barrie 2014);
- **Terms of Reference for Subwatershed Impact Studies – Barrie Annexed Lands (OPA 38 Salem Secondary Plan & OPA 39 Hewitt's Secondary Plan** (Schaeffers & Associates Ltd *et al.* 2015);
- **Subwatershed Impact Study Report - Salem Annexed Lands, City of Barrie** (Schaeffers & Associates Ltd *et al.* 2017);
- **The City of Barrie Official Plan** (City of Barrie 2022);
- **County of Simcoe Interactive County Maps (GIS) Orthorectified Coloured Orthophotographs** (County of Simcoe 1989 to 2018);
- **Google Earth Pro Orthorectified Coloured Orthophotographs** (Google Earth Pro July 20, 2009 to 2020); and,
- **First Base Solutions Spring 2021 Orthorectified Coloured Orthophotograph** (First Base Solutions 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);
- **Simcoe County GIS Biophysical and Natural Environment Overlays** (County of Simcoe 2022);
- **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 EIS, and is inclusive of the following:

- Plan of Survey with Topography of Part of South Half of Lot 1, Concession 11, Geographic Township of Innisfil, Town of Innisfil, County of Simcoe (Lloyd & Purcell 2021);
- 500 Salem Road Part of Lot 1, Concession 11, City of Barrie– Application for Conformity Review (Innovative Planning Solutions 2021);
- Functional Servicing & Stormwater Management Report, 500 Salem Road, City of Barrie (WMI & Associates Limited 2022);
- Arborist Report and Tree Preservation Plan, 500 Salem Road, City of Barrie (Azimuth Environmental Consulting Inc. 2021);
- Arbor Plan 500 Salem Road Development, Barrie, Ontario (Landmark Environmental Group Ltd. 2021);
- Hydrogeological Study and Water Balance Analysis – Proposed Residential Townhome Subdivision, 500 Salem Road, Town of Innisfil, City of Barrie (Wilson Associates 2022);
- Natural Heritage Features Conformity Review – 500 Salem Road, Part of South Half of Lot 1, Concession 11, City of Barrie, County of Simcoe (Cunningham Environmental Associates 2022);
- 500 Salem Road Part of Lot 1, Concession 11, City of Barrie, County of Simcoe – Applications for Consent to Sever and Minor Variance (Innovative Planning Solutions 2022a);
- 500 Salem Road Part of Lot 1, Concession 11, City of Barrie, County of Simcoe – Application for Zoning By-Law Amendment & Draft Plan of Subdivision (Innovative Planning Solutions 2022b);
- Severance Sketch - Part of South Half of Lot 1, Concession 11, Geographic Township of Innisfil, Town of Innisfil, County of Simcoe (Innovative Planning Solutions 2022c);
- Draft Plan of Subdivision (overlay onto FBS spring 2021 orthophoto) - Part of South Half of Lot 1, Concession 11, Geographic Township of Innisfil, Town of Innisfil, County of Simcoe (Innovative Planning Solutions 2022d);
- Draft Plan of Subdivision - Part of South Half of Lot 1, Concession 11, Geographic Township of Innisfil, Town of Innisfil, County of Simcoe (Innovative Planning Solutions 2022e);

It is our understanding that additional technical reports as listed in the Technical Meeting Required Reports – Zoning By-Law Amendment & Draft Plan of Subdivision (City of Barrie 2021b) are forthcoming, including possible revisions to those listed-above.

2.2 Aerial Photographic Interpretation

Coloured orthophotographs (Google Earth Pro, County of Simcoe, First Base Solutions) were reviewed to obtain an understanding of the property site conditions, in terms of overall past and present physical site conditions, drainage patterns, disturbances; terrestrial habitats (e.g., vegetation communities such as wetland, woodland, meadow, thicket; wildlife habitats; aquatic environs; and surrounding land uses.

2.3 Site Inspection and Inventories

2.3.1 Vegetation Resources

A site reconnaissance and site inventories were conducted on the entire property on June 11, July 8, and September 15 2020, September 24, 2021, and on September 28, 2022. The vegetation communities were identified, delineated (through aerial photographic interpretation and ground-truthing) and characterized using the standard MNRF Ecological Land Classification codes (Lee 2008). The inherent plant species composition, structure and age class were documented. A photographic record of the vegetation resources, disturbances and point of interest was compiled. The wetland mosaic boundaries on the east side (east edge of TCPL) and west edge of East Parcel were staked in-situ on September 15, 2020 with staff of NVCA and surveyed by an Ontario Land Surveyor. The wetland boundaries were subsequently overlaid onto the property survey/Draft Plan of Subdivision, which was reviewed and approved by the NVCA.

A stand-alone Arborist Report and Tree Preservation Plan – 500 Salem Road, City of Barrie has been prepared (Azimuth Environmental Consulting Inc. 2021). In addition, a stand-alone Arbor Plan – Existing Conditions, Tree Preservation Plan 1 & 2 and Landscape Details has been prepared (Landmark Environmental Group Ltd. 2021).

2.3.2 Wildlife Resources

A complete suite of field inventories was undertaken in 2020 and 2021 on the entire property by Azimuth to document the on-site wildlife resources. Field inventory dates were June 14 and June 30, 2020 for dawn breeding birds; June 30 and July 1, 2020 for nocturnal birds; and June 30, 2020 and April 8 and May 18, 2021 for evening amphibian calls. Incidental wildlife observations for reptiles, mammals, and Lepidoptera were also recorded, during both the standard wildlife inventories and botanical inventories.

Evening Amphibian Calls

One late-spring evening amphibian survey was conducted in 2020 at one survey station providing adequate coverage of the wetland habitat on the property. The survey was conducted on June 30, 2020 (temperature 22°C; Beaufort Wind Scale: 0; precipitation: none; cloud cover: 0%; surveyor: Scott Tarof). The survey was five minutes in duration and followed the Bird Studies Canada Marsh Monitoring Program protocol (Bird Studies Canada, 2008). A wetland on the south side of Tiffin Street between Dunlop Street West and Ferndale Drive in Barrie, Ontario served as the control site. The survey was conducted from a landscape perspective. All amphibians seen or heard were identified to species and counted.

In 2021, early- and mid-spring evening calling amphibian surveys were conducted at the same survey station used for the 2020 late-spring amphibian survey. The early-spring survey was conducted on April 8, 2021 (temperature 18°C; Beaufort Wind Scale: 0; precipitation: none; cloud cover: 10%; surveyor: S. Tarof). The mid-spring survey was conducted on May 18, 2021 (temperature 18°C; Beaufort Wind Scale: 0; precipitation: none; cloud cover: 0%; surveyor: S. Tarof). Azimuth applied the same survey protocol used in 2020, including the same control site.

Dawn Breeding Birds

Two dawn breeding bird surveys were conducted at seven-point count stations on June 14 and June 30, 2020 (surveyor: Lisa Moran). Point counts were five minutes in duration and otherwise followed the protocol of the Ontario Breeding Bird Atlas Guide for Participants (OBBA, 2001). Survey station locations conferred reasonable coverage of the property and adjacent lands. Breeding evidence was assessed using OBBA (2001) criteria. All birds seen or heard were identified to species and counted.

Nocturnal Birds

Two nocturnal bird passive surveys were conducted at a single point count station on June 30 and July 1, 2020 (S. Tarof). Each point count was 10 minutes in duration and followed provincial survey protocol (OMNR, 2013). Survey dates were chosen within optimal survey windows within the week leading up to the full moon to provide the ideal conditions for species to be active (if present). Breeding evidence was assessed using OMNR (2013) criteria (*e.g.*, males calling on two or more surveys from the same general location conferred “probable breeding” evidence). Orr Lake near Hillsdale, Ontario was used as a control site.

Incidental Wildlife

A list of wildlife (*e.g.*, reptiles, mammals) observed during June and July property visits was recorded based on direct sightings and indirect evidence (*e.g.*, tracks, scats, nests, burrows, calls).

2.3.3 Species at Risk (SAR)

Azimuth completed a preliminary desktop SAR search using the Natural Heritage Information Centre (NHIC 2022) database to obtain information regarding terrestrial and aquatic SAR associated with the property and/or adjacent lands. The following NHIC 1km grid square was queried for SAR records: 17PK0107. A search of DFO’s interactive mapping database and LIO’s aquatic resource areas mapping was also completed in regards to aquatic environmental sensitivities.

The SAR screening undertaken included an assessment of SAR with potential to occur at the County scale. The County list was modified based on habitat features in the area and species’ ranges. Where potentially suitable habitat was present, the assessment included SAR occurrence records from the NHIC database (Appendix B). Habitat requirements and appropriate designations (Endangered, Threatened or Special Concern) are outlined in Table 1. The SAR assessment followed the MECP guidance document - Client’s Guide to Preliminary Screening for SAR (MECP, 2019).

2.3.4 Aquatic Resources

Given the intermittent nature of the Bear Creek Tributary which drains (south to north) mostly surface water through the property, a fish biomass assessment and fish habitat assessment were not undertaken, nor warranted.

2.4 Assessment Methods

2.4.1 Vegetation Communities & Floristics

The anthropogenic, cultural woodland and wetland features on the property, with emphasis on the proposed east block development area were characterized and mapped using the standard MNRF Ecological Land Classification codes for Site Region 6E and Site District 6E-8 (Lee 2008). The inherent plant species within each ELC (vegetation community) were inventoried and recorded in the super canopy, canopy, understorey, shrub and groundcover strata, where warranted. A complete photographic record of the on-site and off-site vegetation and other points of interest was compiled.

On September 15, 2020 the boundaries of the “Unevaluated” or “Other” wetlands were staked with staff of NVCA (Mike Francis and Emma Perry). The wetland boundary stakes were subsequently surveyed by an Ontario Land Surveyor - OLS (Lloyd and Purcell 2021) and overlain onto a Plan of Survey with Topography (see Figure 2).

The delineation and characterization of the vegetation communities followed the MNRF Ecological Land Classification (ELC) systems for Site Region 6E. Where applicable, the classification of vegetation communities are described following the terminology of the ELC system, an **Ecological Land Classification for Southern Ontario – First Approximation and Its Application** (Lee *et al.* 1998) with updated codes contained in Lee (2008). In addition to the ELC system.

As defined in Lee *et al.* (1998), 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 general vegetation communities were characterized according to 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.

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- 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, 78 p.

The rarity or significance for vegetation communities and vascular plants (floristics) on the property was determined from standard status lists, published literature and the NHIC data-query web-site (NHIC 2022). Sources for flora included COSEWIC (2022), Province of Ontario (2007), MNRF (2022a), MNRF (2022b) Oldham and Brinker (2009), Leslie (2018), and Riley (1989). Rare plant species (Species at Risk in Ontario – SARO) included those listed and regulated under the Province of Ontario **Endangered Species Act, 2007**, as amended from time to time (Province of Ontario 2007). The determination for plant species rarity consisted of a straightforward comparison of the subject property plant species with those listed in these source references.

2.4.2 Wildlife and Wildlife Habitat

Standard MNRF and Ministry of Environment, Conservation and Parks (MECP) field inventory protocols were used to document the on-site and abutting wildlife and wildlife habitats. Observed wildlife species included birds, mammals, reptiles, amphibians and Lepidoptera were deemed to be possible breeders and/or year-round residents, given the types of wildlife habitat on and abutting the property, while some (incidental wildlife observations) likely breed off-site or were early fall migrants. Direct evidence of wildlife presence included calls and/or sightings, and indirect evidence of wildlife presence typically included scats, nests, tracks, browse, carcasses and push-ups.

Standard lists and published literature used to determine the status or rarity of reptiles included Environment and Climate Change Canada (2022), Committee on the Status of Endangered Wildlife in Canada (2022), Province of Ontario (2007), Ministry of Natural Resources and Forestry (2022a), and Ontario Nature (2022). The determination for reptile species rarity consisted of a straightforward comparison of property and abutting land wildlife species recorded, with those listed in these source references.

2.4.3 Aquatic Environs

As per **Section 2.3.3**, a fish biomass assessment and fish habitat assessment were not undertaken in the on-site reaches of the Bear Creek Tributary, nor were these tasks warranted. The tributary is part of the large wetland mosaic and Natural Linkage Area and is well buffered and protected from the proposed land use changes to the West Parcel and East Parcel.

3 EXISTING CONDITIONS

3.1 Land Use

The as-built **West Parcel (Part A)** fronts onto north side of Salem Road at the municipal address of 500 Salem Road (**Photographs 1 and 2**). Land use to the west and east includes as-built single-family lots (**Photograph 3**) and part of the TCPL easement (**Photograph 4**). The land use to the north includes wetland feature and part of the TCPL easement (**Photograph 5**).

Views of the as-built house comprised of a as-built detached two-storey house, attached 3 car garage, interlock brick driveway, manicured grassed front yard and back yard, well, and accessory structures such as wooden sheds (**Photographs 6 and 7**).

3.2 Physiography

Figure 2 shows the boundaries and topography of and on the property. Other reports have been prepared for the formal planning submission for the ZBA & Draft Plan of Subdivision, which will address such physical parameters as drainage, stormwater management, soils, phosphorus budget, hydrogeology, water balance, and geotechnical as requested by the City (City of Barrie 2021b). the stand-alone technical reports (see **Section 2.1**) should be reviewed for details regarding the property's physiography.

3.3 Regional Vegetation

Based on a forest classification by Rowe (1972), the subject property lies within the Huron-Ontario Section of the Great Lakes-St. Lawrence Forest Region. The original forest cover consisted primarily of hardwoods, such as sugar maple (*Acer saccharum*) and beech (*Fagus grandifolia*). Other woody associates included 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*) were typical within the tolerant hardwood types. Species such as largetooth aspen (*Populus grandidentata*), butternut (*Juglans cinerea*), bitternut hickory (*Carya cordiformis*), hop hornbeam (*Ostrya virginiana*), and black cherry (*Prunus serotina*) were scattered throughout. Species associated with river-bottoms and swamp sites included blue-beech (*Carpinus caroliniana*), silver maple (*Acer saccharinum*), slipper elm (*Ulmus rubra*), rock elm (*Ulmus thomasi*), and black ash (*Fraxinus nigra*). Eastern white cedar (*Thuja occidentalis*) is ubiquitous to swampy depressions and on old fields.

The majority of the original forest cover in many parts of southcentral Ontario has been cleared for settlement and cultivation, and consequently, contiguous, extensive tracts are relatively uncommon. Tableland woodlots remaining within settlement areas are usually disturbed and/or in various stages of successional growth.



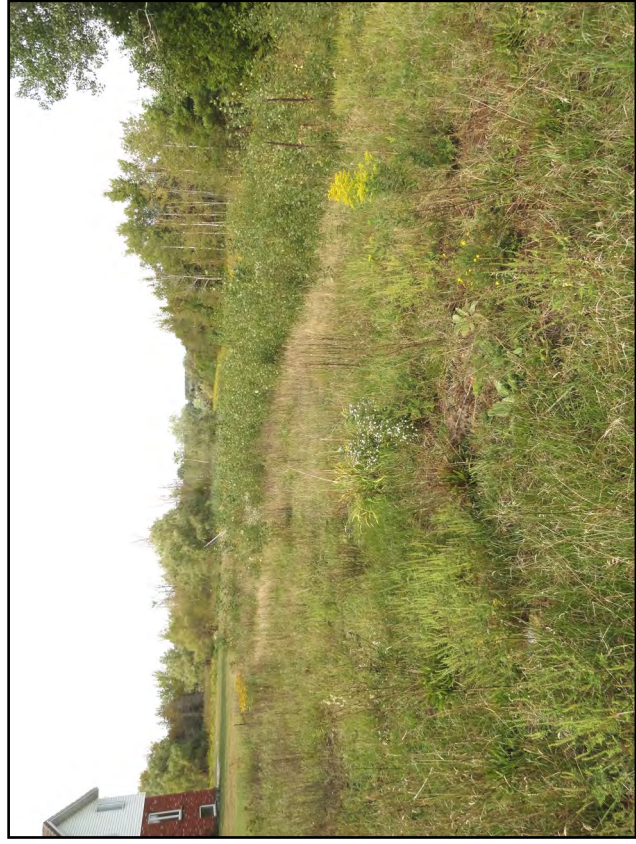
Photograph 1. Eastward view of Salem Road from east entrance to as-built house at 500 Salem Road, proposed severance property



Photograph 2. Westward view of Salem Road from east entrance to as-built house at 500 Salem Road, proposed severance property



Photograph 3. View of as-built single-family lots abutting west edge of proposed severance lot at 500 Salem Road



Photograph 4. Northward view of TransCanada PipeLines (TCPL) easement, bordering eastern edge of proposed as-built severance at 500 Salem Road



Photograph 5. Northward view of contiguous "Other Wetland or Non-PSW), comprised of mixed treed swamp, to the north of the as-built proposed severance lot at 500 Salem Road



Photograph 6. Northward view of detached as-built two-storey house, attached 3-car garage, interlock brick driveway, manicured grassed front yard, (CVR_3), all contained within the proposed severance land at 500 Salem Road



Photograph 7. Southward view of frontage of as-built two-storey house, attached 3-car garage, utility sheds, well, manicured grassed back yard (CVR_3), all contained within the proposed severance land at 500 Salem Road



Photograph 8. Westward view of dry-fresh mixed meadow/fresh moist mixed meadow (MEMM3/MEMM4) at the back of the detached house, part of the proposed severance land at 500 Salem Road

3.4 Vegetation

3.4.1 Ecological Land Classifications (ELCs)

Table 1 provides a summary of the vegetation communities (ELC units) which were identified, characterized and delineated on the **West Parcel (Part A)**. **Figure 3** shows the locations of each of the ELC units on the property. **Table 1** in combination with **Figure 2**, **Figure 3** and the photographs provides a detailed visual perspective of the on-site natural heritage features in Part A.

Table 2 provides a summary of the vegetation communities (ELC units) which were identified, characterized and delineated on the **East Parcel (Part B)**, which includes the intervening wetland mosaic features, TCPL features, and the graded/fill block of proposed townhomes. **Figure 3** shows the locations of each of the ELC units on this part of the property. **Table 2** in combination with **Figure 2**, **Figure 3** and the photographs provides a detailed visual perspective of the on-site natural heritage features in Part B.

The following sub-sections in conjunction with **Table 1** and **Table 2** provide summary descriptions of the features on the **West Parcel (Part A)** and the **East Parcel (Part B)**. The summaries include their ELC characterization, boundaries and typical inherent plant species composition in the overstorey, understorey, shrub and groundcover strata, where applicable. Also, updated ELC codes (Lee 2008) are used on **Figure 3** in place of the ELC codes used in the Natural Heritage System – NHS reports.

West Parcel (Part A)

Single Family Residential (CVR_3)

The feature consists of the as-built detached two-storey single family home with attached 3 car garage, interlock driveway, porch, utility sheds, septic tank and sewage tile bed, well, and manicured front and back yard at municipal address of 500 Salem Road (**Photographs 6 and 7**).

Dry-Fresh Mixed Meadow/Fresh-Moist Mixed Meadow (MEMM3/MEMM4)

Contiguous with and abutting the edge of the manicured grassed back yard is a rectangular block of mixed meadow comprised of forbs such as asters, goldenrods, grasses, weeds, herbaceous forbs, and ferns (**Photographs 8 and 9**). Typical groundflora includes tall goldenrod (*Solidago altissima*), Canada goldenrod (*Solidago canadensis*), grass-leaved goldenrod (*Euthamia graminifolia*), New England aster (*Symphyotrichum novae-angliae*), horseweed (*Conyza canadensis*), daisy fleabane (*Erigeron annuus*), cow vetch (*Vicia cracca*), sensitive fern (*Onoclea sensibilis*), heart-leaved aster (*Symphyotrichum cordifolium*), common ragweed (*Ambrosia artemisiifolia*), ox-eye daisy (*Chrysanthemum leucanthemum*), spiny-leaved sow-thistle (*Sonchus asper*), common buttercup (*Ranunculus acris*), common mullein (*Verbascum thapsus*), riverbank grape (*Vitis riparia*), common burdock (*Arctium minus*), spotted Joe pye-weed (*Eutrochium maculatum*), boneset (*Eupatorium perfoliatum*), red clover (*Trifolium pratense*), white clover (*Trifolium arvense*), creeping bent grass (*Agrostis stolonifera*), reed canary grass (*Phalaris arundinacea*), white sweet-clover (*Melilotus alba*), and awnless brome grass (*Bromus inermis*).

Table 1. List of Ecological Land Classification Units (Vegetation Communities) on the Proposed Severance Land (June 17, July 3, July 14 2020 and September 24 2021 and September 28 2022)*

ELC Code	Vegetation Type	Summary Description
CVR_3	Single Family Residential	- as-built detached two-storey single family home with attached 3 car garage, interlock driveway, porch, utility sheds, septic tank and sewage tile bed, well, manicured front and back yard at municipal address of 500 Salem Road (Photographs 6 and 7)
MEMM3/MEMM4	Dry-Fresh Mixed Meadow/Fresh-Moist Mixed Meadow	- a strip of mixed forb meadow contiguous with the manicured back yard, comprised of forbs such as asters, goldenrods, grasses, weeds, herbaceous forbs, and ferns (Photographs 8 and 9)
SWTM3-6	Mixed Willow Mineral Deciduous Thicket Swamp	- a wetland characterized as treed swamp, comprised of 10 large willow trees namely white willow and crack willow, along with smaller shrub willow such as pussy willow, meadow willow, Bebb's willow, and heart-leaved willow - the groundcover contains reed canary grass, boneset, spotted Joe pye-Weed, spotted jewelweed, blue vervain, common reed, purple-stemmed aster, narrow-leaved cattail, purple loosestrife, creeping bent grass and Canada bluejoint grass (Photographs 10 and 11)
MAMM1-12	Common Reed Graminoid Mineral Meadow Marsh	- comprised of a dense sward of common reed, most of which lies within the TCPL (Photograph 12)

* refer to **Figure 3** for locations of the listed ELCs on the proposed severance land



Figure 3. Ecological Land Classification Units (Vegetation Communities)

Scale 1: 1600 (approx.)

LSR Salem Road

500 Salem Road
Part of South Half Lot 2, Concession 1
Geographic Township of Innisfil
Town of Innisfil
County of Simcoe

— property boundary

— Bear Creek tributary



ELC (vegetation community)
(see Tables 1 & 2 for details)



Cunningham Environmental Associates

Table 2. List of Ecological Land Classification Units (Vegetation Communities) on the East Parcel, EPA Designation Land and TCPL (June 17, July 3, July 14 2020 and September 24 2021 and September 28 2022)*

ELC Code	Vegetation Type	Summary Description
East Parcel, EPA Designation and SSP “Linkage”		
MEMM3/graded fill	Dry-Fresh Mixed Meadow (in conjunction with graded fill)	- part of East Parcel proposed Draft Plan of Subdivision, comprised of dry-fresh mixed meadow (MEMM3), in conjunction with graded fill - most of this cultural feature is devoid of vegetation cover, save and except for regenerating noxious weeds, grasses and herbaceous forbs (Photographs 18 to 23)
FOMM7-2	Dry-Fresh White Cedar-Hardwood Mixed Forest	- situated along west edge of East Parcel proposed Draft Plan of Subdivision, comprised of dry-fresh white cedar-hardwood mixed stand (Photographs 24 and 25) - other woody associates include trembling aspen, balsam poplar, white birch, balsam poplar, staghorn sumac, choke cherry, wild red raspberry, poison ivy, black cherry, riverbank grape, Virginia creeper and scattered white spruce - groundflora species include enchanter’s nightshade, herb-robert, tall goldenrod, common dandelion, spinulose woodfern, sensitive fern, wild basil, coltsfoot, Pennsylvania sedge, large-leaved aster, wild sarsaparilla, and New England aster
MEMM4	Fresh-Moist Mixed Meadow	- bordering most of the western edge of the East Parcel is a linear block characterized as fresh-moist mixed meadow (Photograph 26) - comprised of asters, goldenrods, herbaceous forbs, ferns, sedge and grasses - typical species include tall goldenrod, wild carrot, coltsfoot, New England aster, sensitive fern, calico aster, spiny-leaved sow-thistle, common burdock, thistles, reed canary grass, wild mint, spotted jewelweed, Virgins bower, and horsetails - there are also scattered willow shrubs, red-osier dogwood, staghorn sumac and wild red raspberry that grade into SWTM3-6/MAMM3-1 further to the west
WOMM3-2	White Cedar-Manitoba Maple Mixed Woodland	- situated in the southeast corner of the East Parcel (MEMM3/graded fill) is a small white cedar-Manitoba maple mixed woodland (Photograph 27) - other woody vegetation includes Scots pine, willow shrubs, common buckthorn, staghorn sumac, white elm, red-osier dogwood, high-bush cranberry, and dead/dying white ash - the groundcover is comprised of noxious weeds, grasses and herbaceous forbs similar to those found in MEMM3/graded fill

SWTM3-6/MAMM3-1	Mixed Willow Mineral Deciduous Thicket Swamp/Mixed Mineral Meadow Marsh	- the eastern portion of the EPA designation (west of the East Parcel) is dominated by mixed willow deciduous thicket swamp in conjunction with mixed mineral meadow marsh (Photographs 28 and 29) - typical woody species include pussy willow, crack willow, meadow willow, heart-leaved willow, speckled alder, common buckthorn, red-osier dogwood, maple-leaved viburnum, blackberry, poison ivy and nannyberry - groundcover consists of reed canary grass, narrow-leaved cattail, spiny-leaved sow thistle, common reed, purple loosestrife, blue vervain, spotted jewelweed, coltsfoot, pale smartweed, fowl bluegrass, riverbank grape, spotted Joe pye-weed, boneset, purple-stemmed aster, stinging nettle, small-flowered willow-herb, beggar-ticks, deadly nightshade, creeping bent grass, fowl blue grass, Canada bluejoint grass, awl-fruited sedge, horsetails, spike-rush, swamp milkweed, marsh fern, wild mint, sensitive fern, lady fern, wool grass, soft rush, foxtail sedge, and tall goldenrod
MAMM1-12	Common Reed Graminoid Mineral Meadow Marsh	- two dense swards of common reed graminoid mineral meadow marsh, one east of the Bear Creek Tributary (Photograph 30) and one on the west side (Photograph 31), part of the wetland mosaic in the EPA designation - common reed is the dominant species, with other associated graminoids, sedges, aquatic forbs, and ferns such as tall goldenrod, narrow-leaved cattail, blue vervain, purple loosestrife, spotted Joe pye-weed, boneset, creeping bentgrass, foxtail sedge, spotted jewelweed, marsh fern, sensitive fern, fowl manna grass, lady fern and Canada bluejoint grass
SWMM1-1	White Cedar-Hardwood Mineral Mixed Swamp	- a small pocket of mixed treed swamp, contiguous with FOMM7-2 and SWMM3-2, part of the wetland mosaic in the EPZ designation (Photographs 32 and 33) - eastern white cedar, trembling aspen, balsam poplar and white elm are dominant, along with scattered white spruce and white birch - the dense shrub and vine stratum include pussy willow, meadow willow, heart-leaved willow, speckled alder, riverbank grape, Virginia creeper, wild cucumbers, poison ivy - the groundcover consists of grasses, sedges, ferns, and aquatic forbs similar to those found in SWMT3-6/MAMM3-1
SWMM3-2	Poplar-Conifer Mineral Mixed Swamp	- relatively large blocks of treed mixed swamp, part of the wetland mosaic in the EPA designation, one stand is east of the Bear Creek tributary, and one is west of the tributary (Photographs 34 to 37) - dominant trees in the overstorey include trembling aspen, balsam poplar, eastern white cedar and white elm - woody associates and vines include Missouri willow, pussy willow, Bebb's willow, meadow willow, red-osier dogwood, alternate-leaved dogwood, speckled alder, meadowsweet, scattered white spruce, white birch, swamp birch, green ash, white ash, wild cucumber, riverbank grape and Virginia creeper - groundcover species include tall goldenrod, reed canary grass, narrow-leaved cattail, blue vervain, purple loosestrife, spotted Joe pye-weed, boneset, creeping bentgrass, foxtail sedge, spotted jewelweed, marsh fern, sensitive fern, fowl manna grass, lady fern, ostrich fern, Canada bluejoint grass, coltsfoot, blue vervain, tall goldenrod, purple-stemmed aster, purple loosestrife, field horsetail, foxtail sedge, wool grass, dark green bulrush, porcupine sedge, retrorse sedge, and fowl bluegrass

SWDM4-5	Poplar Mineral Deciduous Swamp	- poplar deciduous swamp, part of the wetland mosaic, dominated by trembling aspen, balsam poplar, white birch and white elm (Photographs 38 and 39) - shrubs and vines include pussy willow, Missouri willow, red-osier dogwood, alternate-leaved dogwood, Virginia creeper, wild cucumber and riverbank grape - common groundcover species include reed canary grass, common cattail, purple-stemmed aster, purple loosestrife, sensitive fern, marsh fern, tall goldenrod, boneset, spotted Joe pye-weed, spotted jewelweed, beggar-ticks and blue vervain
FOMM4-2	Dry-Fresh White Cedar-Poplar Mixed Forest	- a small stand dominated by white cedar and trembling aspen, along with balsam poplar, white spruce and choke cherry along west edge of EPA designation (Photograph 40 and 41) - barren to sparse groundcover contains thyme-leaved speedwell, enchanter's nightshade, sensitive fern, daisy fleabane, eastern bracken fern, common dandelion, deadly nightshade, reed canary grass, lady fern, field horsetail, and sow-thistle
TransCanada PipeLine (TCPL) Easement		
WODM5-1	Fresh-Moist Poplar Deciduous Woodland	- a small copse of trembling aspen seedlings and saplings at south end of TCPL easement (Photograph 42 and 43), with a grass/weedy groundcover
MEMM3/MEMM4	Dry-Fresh Mixed Meadow/Fresh-Moist Mixed Meadow	- a continuance of mixed forb meadow, part of the rear manicured back yard of the proposed severance land comprised of forbs such as asters, goldenrods, grasses, weeds, herbaceous forbs, and ferns (Photograph 44) - groundcover species include tall goldenrod, Canada goldenrod, New England aster, grass-leaved goldenrod, sensitive fern, horseweed, daisy fleabane, common dandelion, annual bluegrass, reed canary grass, boneset, spotted Joe pye-weed, rough-leaved goldenrod, heart-leaved aster, calico aster, wild carrot, common ragweed, English plantain, common plantain, red clover, white clover, and cow vetch
MAMM1-12	Common Reed Graminoid Mineral Meadow Marsh	- a dense sward of common reed graminoid mineral meadow marsh outside of EPA designation and partially within the proposed severance land (Photograph 45)
MASM1-2	Cattail Mineral Shallow Marsh	- a small pocket of narrow-leaved cattail mineral marsh along north property boundary (Photograph 46)
N/A	Bear Creek Tributary	- upgradient views of Bear Creek Tributary reaches, lying within wetland mosaic, part of the EPA designation (Photograph 47 and 48)

* refer to **Figure 3** for locations of the listed ELCs on the property



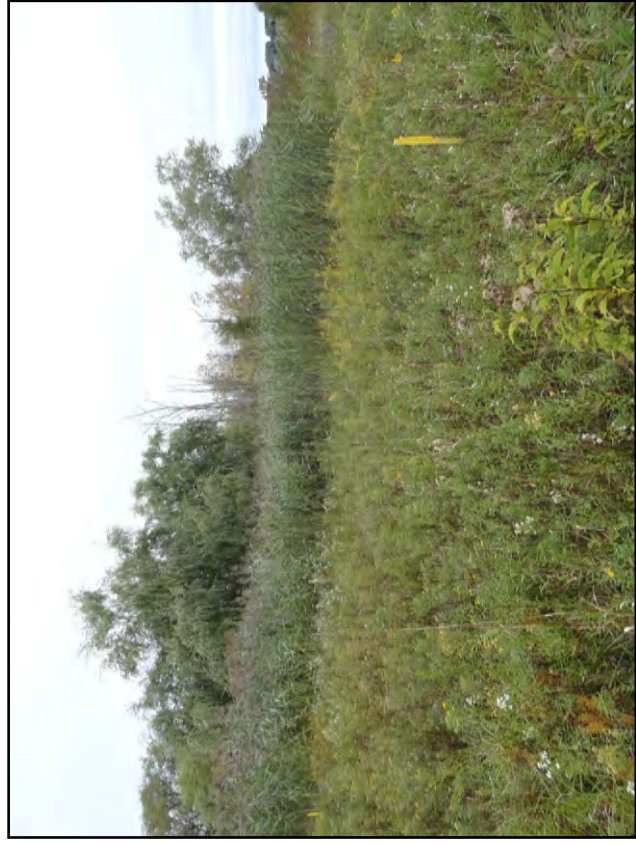
Photograph 9. Eastward view of dry-fresh mixed meadow/fresh moist mixed meadow (MEMM3/MEMM4) at the back of the detached house, part of the proposed severance land at 500 Salem Road



Photograph 11. Northward view of part of mixed willow mineral deciduous thicket swamp (SWTM3-6), at back of existing as-built house (CVR_3), to be dedicated to the City of Barrie as part of the proposed severance



Photograph 10. Northward view of part of mixed willow mineral deciduous thicket swamp (SWTM3-6), at back of existing as-built house (CVR_3), to be dedicated to the City of Barrie as part of the proposed severance



Photograph 12. View of southern edge of common reed graminoid mineral meadow marsh (MAMM1-12), part of which lies within the back of the existing as-built house (CVR_3), to be dedicated to the City of Barrie

Mixed Willow Mineral Deciduous Thicket Swamp (SWTM3-6)

Abutting the MEMM3/MEMM4 feature at the back of the lot is a treed swamp wetland feature, which extends off-site to the north (**Photographs 10 and 11**). It is comprised of 10 mature willow trees, namely white willow (*Salix alba*) and crack willow (*Salix fragilis*), along with smaller shrub willow such as pussy willow (*Salix discolor*), meadow willow (*Salix petiolaris*), Bebb's willow (*Salix bebbii*), heart-leaved willow (*Salix eriocephala*), red-osier dogwood (*Cornus stolonifera*), alternate-leaved dogwood (*Cornus alternifolia*), and maple-leaved viburnum (*Viburnum acerifolium*). The groundcover contains reed canary grass, boneset, spotted Joe pye-weed, spotted jewelweed (*Impatiens capensis*), blue vervain (*Verbena hastata*), common reed (*Phragmites communis*), purple-stemmed aster (*Symphyotrichum puniceum*), purple loosestrife (*Lythrum salicaria*), deadly nightshade (*Solanum dulcamara*), water horehound (*Lycopus americanus*), narrow-leaved cattail (*Typha angustifolia*), creeping bent grass, Canada bluejoint grass (*Calamagrostis canadensis*), awl-fruited sedge (*Carex stipata*), foxtail sedge (*Carex vulpinoidea*), dark-green bulrush (*Scirpus atrovirens*), wool grass (*Scirpus cyperinus*), sensitive fern, lady fern (*Athyrium filix-femina*), ostrich fern (*Matteuccia struthiopteris*) and marsh fern (*Thelypteris palustris*).

Common Reed Graminoid Mineral Meadow Marsh (MAMM1-12)

As **Photograph 12** shows, this wetland feature consists of a dense sward of common reed, most of which is contiguous and lies within the TCPL. Other species include graminoids, sedges, aquatic forbs, and ferns such as those that were found in MEMM3/MEMM4.

East Parcel (Part B)

As previously stated, the **East Parcel (Part B)** includes the relatively large block of wetland mosaic in the central portion of the property, the TCPL easement, and the proposed area of the residential townhome development on the far east end of the property.

The **East Parcel** fronts onto the north side of Salem Road, to the east of the as-built house in the **West Parcel (Photograph 13 and 14)**. Land use to the south includes part of the Unilock Limited property and part of the Crisdawn Construction Inc. property (**Photographs 15 and 16**). To the east is vacant agricultural land comprised of grassed field and shrub thicket, and as we understand is owned by a department of the Province of Ontario (**Photograph 17**).

Dry-Fresh Mixed Meadow (in conjunction with graded fill) (MEMM3/graded fill)

Most of this cultural feature is devoid of vegetation cover, save and except for regenerating noxious weeds, grasses and herbaceous forbs (**Photographs 18 to 23**). Typical groundflora includes common mullein, white sweet-clover, common ragweed, common dandelion (*Taraxacum officinale*), wild carrot (*Daucus carota*), bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), black-eyed Susan (*Rudbeckia hirta*), chicory (*Cichorium intybus*), tall goldenrod, Canada goldenrod, field bindweed (*Convolvulus arvensis*), oak-leaved goosefoot (*Chenopodium glaucum*), coltsfoot (*Tussilago farfara*),



Photograph 13. Eastward view of Salem Road at entrance to the East Parcel, the site of a proposed Draft Plan of Subdivision



Photograph 14. Westward view of Salem Road at entrance to the East Parcel, the site of a proposed Zoning By-law Amendment & Draft Plan of Subdivision



Photograph 15. View of land use to the south of East Parcel, consisting of part of the commercial Unilock Limited property



Photograph 16. View of land use to the southwest of the East Parcel, consisting of future residential, part of the Crisdown Construction Inc property



Photograph 17. View of abutting vacant agricultural lands to the east of the property (East Parcel) comprised of grassed field and shrub thickets



Photograph 18. Southeast to northeast view of dry-fresh mixed meadow (MEMM3) in conjunction with graded fill, part of the East Parcel proposed Draft Plan of Subdivision



Photograph 19. Northeast to northwest view of dry-fresh mixed meadow (MEMM3) in conjunction with graded fill, part of the East Parcel proposed Draft Plan of Subdivision



Photograph 20. Northwest to southwest view of dry-fresh mixed meadow (MEMM3) in conjunction with graded fill, part of the East Parcel proposed Draft Plan of Subdivision



Photograph 21. Southwest view of dry-fresh mixed meadow (MEMM3) in conjunction with graded fill, part of the East Parcel proposed Draft Plan of Subdivision



Photograph 22. Southeast to northwest view of dry-fresh mixed meadow (MEMM3) in conjunction with graded fill, part of the East Parcel proposed Draft Plan of Subdivision



Photograph 23. Southeast to northeast view of dry-fresh mixed meadow (MEMM3) in conjunction with graded fill, part of the East Parcel proposed Draft Plan of Subdivision



Photograph 24. View of east edge of dry-fresh white cedar-hardwood mixed forest partially within and along gentle slope at west edge of East Parcel

crown vetch (*Securigera varia*), bird's-foot trefoil (*Lotus corniculatus*), English plantain (*Plantago lanceolata*), common plantain (*Plantago major*), pigweed (*Amaranthus retroflexus*), and timothy.

Dry-Fresh White Cedar-Hardwood Mixed Forest (FOMM7-2)

Situated along west edge of **East Parcel**, in the area of the proposed Draft Plan of Subdivision, is a narrow band of a dry-fresh white cedar-hardwood mixed stand (**Photographs 24 and 25**). Other woody associates include trembling aspen, balsam poplar, white birch, common buckthorn (*Rhamnus cathartica*), staghorn sumac (*Rhus typhina*), choke cherry (*Prunus virginiana*), wild red raspberry (*Rubus idaeus*), poison ivy (*Toxicodendron radicans*), black cherry, riverbank grape, Virginia creeper and scattered white spruce. Typical groundflora species include enchanter's nightshade (*Circaea lutetiana*), herb-robert (*Geranium robertianum*), tall goldenrod, common dandelion, spinulose woodfern (*Dryopteris carthusiana*), sensitive fern, wild basil (*Clinopodium vulgare*), coltsfoot, Pennsylvania sedge (*Carex pensylvanica*), large-leaved aster (*Eurybia macrophylla*), wild sarsaparilla (*Aralia nudicaulis*), daisy fleabane, bladder campions (*Silene vulgaris*), and New England aster.

Fresh-Moist Mixed Meadow (MEMM4)

Bordering most of the west edge of MEMM3/graded fill is a linear block characterized as fresh-moist mixed meadow (**Photograph 26**). The overall groundcover is comprised of asters, goldenrods, herbaceous forbs, ferns, sedge and grasses. Typical species include tall goldenrod, wild carrot, coltsfoot, New England aster, sensitive fern, calico aster (*Symphyotrichum lateriflorum*), spiny-leaved sow-thistle, common burdock, thistles, reed canary grass, wild mint (*Mentha arvensis*), spotted jewelweed, Virgins bower, spotted Joe pye-weed, boneset, small-flowered willowherb (*Epilobium parviflorum*), hairy willowherb (*Epilobium hirsutum*), wild carrot, clovers, common reed, spike-rush, wool grass, dark-green bulrush, marsh fern and horsetails. There are also scattered willow shrubs, red-osier dogwood, staghorn sumac and wild red raspberry which grade into SWTM3-6/MAMM3-1 further to the west.

White Cedar-Manitoba Maple Mixed Woodland (WOMM3-2)

Situated in the southeast corner of the **East Parcel** (MEMM3/graded fill) is a small white cedar-Manitoba maple mixed woodland (**Photograph 27**). Other woody vegetation includes Scots pine (*Pinus sylvestris*), willow shrubs, common buckthorn, staghorn sumac, white elm, red-osier dogwood, high-bush cranberry (*Viburnum trilobum*), and dead/dying white ash. The groundcover is comprised of noxious weeds, grasses and herbaceous forbs similar to those found in MEMM3/graded fill.

Mixed Willow Mineral Deciduous Thicket Swamp/Mixed Mineral Meadow Marsh (SWTM3-6/MAMM3-1)

Part of the wetland mosaic in the **East Parcel** is dominated by mixed willow deciduous thicket swamp in conjunction with mixed mineral meadow marsh (**Photographs 28 and 29**). Typical woody species include pussy willow, crack willow, meadow willow, heart-leaved willow, speckled alder (*Alnus rugosa*), common buckthorn, red-osier dogwood, maple-leaved viburnum (*Viburnum acerifolium*), blackberry (*Rubus*



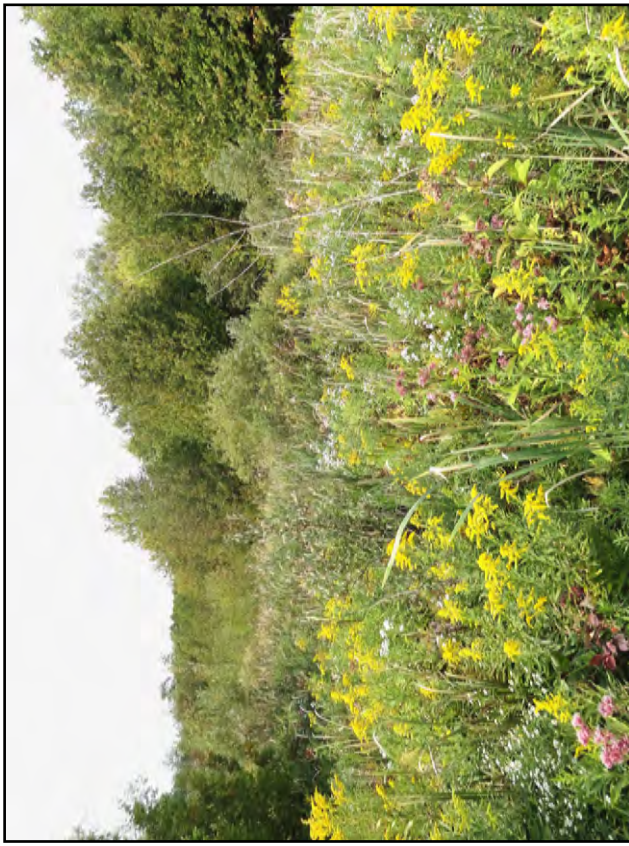
Photograph 25. View inside a portion of dry-fresh white cedar-hardwood mixed forest (FOMM7-2), along gentle west-facing slope



Photograph 26. Westward view of fresh-moist mixed meadow (MEMM4), bordering west edge of East Parcel (MEMM3/graded fill), comprised of asters, goldenrods, herbaceous forbs, ferns, sedges and grasses



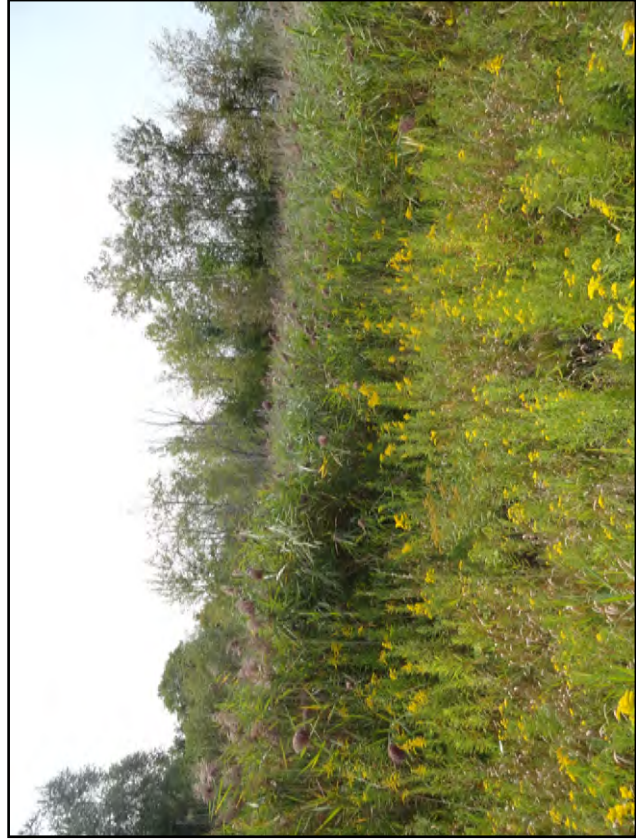
Photograph 27. Eastward view of part of cultural woodland characterized as white cedar-Manitoba maple woodland (WOMM3-2), along east and southeast edges of East Parcel (MEMM3/graded fill)



Photograph 28. Westward view of part of mixed willow mineral deciduous thicket swamp/mixed mineral meadow marsh (SWTM3-6/MAMM3-1), to the west of the East Parcel, part of the wetland mosaic in the designated EPA



Photograph 29. Southwest view of part of mixed willow mineral deciduous thicket swamp/mixed mineral meadow marsh (SWTM3-6/MAMM3-1), on east side of Bear Creek tributary, part of the wetland mosaic in the EPA designation



Photograph 31. View of the western stand of common reed graminoid mineral meadow marsh (MAMM1-12), on both side of the Bear Creek tributary, and lies within the wetland mosaic, part of the EPA designation



Photograph 30. View of the eastern stand of common reed graminoid mineral meadow marsh (MAMM1-12), encompassed by SWTM3-6/MAMM3-1 and lies within the wetland mosaic, part of the EPA designation



Photograph 32. View inside part of treed swamp stand characterized as white cedar-hardwood mineral mixed swamp (SWMM1-1), contiguous with FOMM7-2 and SWMM3-2, part of the wetland mosaic in the EPA designation

occidentalis), poison ivy and nannyberry (*Viburnum lentago*). Common groundcover species include reed canary grass, narrow-leaved cattail, spiny-leaved sow thistle, common reed, purple loosestrife, blue vervain, spotted jewelweed, coltsfoot, pale smartweed (*Persicaria lapathifolia*), fowl bluegrass (*Poa palustris*), riverbank grape, spotted Joe pye-weed, boneset, purple-stemmed aster, stinging nettle (*Urtica dioica*), small-flowered willow-herb, beggar-ticks (*Bidens frondosa*), deadly nightshade, creeping bent grass, Canada bluejoint grass, awl-fruited sedge, horsetails, spike-rush (*Eleocharis spp.*), swamp milkweed (*Asclepias incarnata*), marsh fern, wild mint, sensitive fern, lady fern, wool grass, soft rush (*Juncus effusus*), foxtail sedge, and tall goldenrod.

Common Reed Graminoid Mineral Meadow Marsh (MAMM1-12)

There are two dense swards of common reed graminoid mineral meadow marsh, one east of the Bear Creek Tributary (**Photograph 30**) and one on the west side (**Photograph 31**), part of the wetland mosaic. Common reed is the dominant species, with other associated graminoids, sedges, aquatic forbs, and ferns such as tall goldenrod, narrow-leaved cattail, blue vervain, purple loosestrife, spotted Joe pye-weed, boneset, creeping bentgrass, foxtail sedge, spotted jewelweed, marsh fern, sensitive fern, fowl manna grass, lady fern and Canada bluejoint grass.

White Cedar-Hardwood Mineral Mixed Swamp (SWMM1-1)

This wetland feature consists of a small pocket of mixed treed swamp, contiguous with FOMM7-2 and SWMM3-2, part of the wetland mosaic in the **East Parcel (Photographs 32 and 33)**. Eastern white cedar, trembling aspen, balsam poplar and white elm are dominant, along with scattered white spruce and white birch. The dense shrub and vine stratum includes heart-leaved willow, meadow willow, pussy willow, speckled alder, riverbank grape, Virginia creeper, wild cucumber (*Echinocystis lobata*), and poison ivy. The groundcover consists of grasses, sedges, ferns, and aquatic forbs similar to those found in SWMT3-6/MAMM3-1.

Poplar-Conifer Mineral Mixed Swamp (SWMM3-2)

There are two relatively large blocks of treed mixed swamp, part of the wetland mosaic in the East Parcel and EPA/NHS designation, with one stand on the east of the Bear Creek Tributary, and one is west of the Tributary (**Photographs 34 to 37**). Dominant trees in the overstorey include trembling aspen, balsam poplar, eastern white cedar and white elm. Other woody associates and vines include Missouri willow, pussy willow, Bebb's willow, meadow willow, red-osier dogwood, alternate-leaved dogwood, speckled alder, meadowsweet (*Spiraea alba*), scattered white spruce, white birch, swamp birch (*Betula pendula*), green ash (*Fraxinus pensylvanica*), white ash, wild cucumber, riverbank grape and Virginia creeper. Groundcover species include tall goldenrod, reed canary grass, narrow-leaved cattail, blue vervain, purple loosestrife, spotted Joe pye-weed, boneset, creeping bentgrass, foxtail sedge, spotted jewelweed, marsh fern, sensitive fern, fowl manna grass, lady fern, ostrich fern, Canada bluejoint grass, coltsfoot, blue vervain, tall goldenrod, purple-stemmed aster, purple loosestrife, field horsetail (*Equisetum arvense*), foxtail sedge, wool grass, dark-green bulrush, porcupine sedge, retrorse sedge, and fowl bluegrass.



Photograph 33. View inside part of SWMM1-1, dominated by white cedar, trembling aspen, balsam poplar, and white birch, part of wetland mosaic in the EPA designation



Photograph 35. View inside part of poplar-conifer mineral mixed swamp on east side of Bear Creek tributary, with fern, sedge, grass and aquatic forb groundcover, part of wetland mosaic within EPA designation



Photograph 34. View inside part of poplar-conifer mineral mixed swamp (SWMM3-2) on east side of Bear Creek tributary, dominated by pole-sized balsam poplar and white cedar, part of wetland mosaic in the EPA designation



Photograph 36. View of east edge of poplar-conifer mineral mixed swamp stand (SWMM3-2) on west side of Bear Creek tributary, part of the wetland mosaic in the EPA designation and part of the SSP "Linkage" area



Photograph 37. View of west edge of poplar-conifer mineral mixed swamp stand (SWMM3-2) on west side of Bear Creek tributary, part of the wetland mosaic in the EPA designation



Photograph 39. Northward view along the east edge of SWDM4-5 poplar treed swamp, with a groundcover of aquatic and meadow marsh forbs, cattails, ferns, grasses and sedges, part of the wetland mosaic in the EPA designation



Photograph 38. Eastward view of part of poplar mineral deciduous swamp (SWDM4-5), dominated by poplars, white birch and white elm, with a ground cover of forb meadow marsh, part of the wetland mosaic in the EPA designation



Photograph 40. View inside part of a small stand of dry-fresh white cedar-poplar mixed forest along east edge of TCPL, with a barren to sparse ground cover, along west edge of part of EPA designation

Poplar Mineral Deciduous Swamp (SWDM4-5)

Characterized as poplar deciduous swamp, part of the wetland mosaic, dominated by trembling aspen, balsam poplar, white birch and white elm (**Photographs 38 and 39**). The dense shrub and vine stratus include pussy willow, Missouri willow, red-osier dogwood, alternate-leaved dogwood, Virginia creeper, wild cucumber and riverbank grape. Common groundcover species include reed canary grass, narrow-leaved cattail, purple-stemmed aster, purple loosestrife, sensitive fern, marsh fern, tall goldenrod, boneset, spotted Joe pye-weed, spotted jewelweed, beggar-ticks and blue vervain.

Dry-Fresh White Cedar-Poplar Mixed Forest (FOMM4-2)

This feature is comprised of a small wooded stand dominated by white cedar and trembling aspen, along with balsam poplar, white spruce and choke cherry. It is situated along west edge of EPA designation and abuts the edge of the west SWMM3-2 wetland unit and the east edge of the TCPL at the frontage onto Salem Road (**Photograph 40 and 41**). The groundcover consists of barren to sparse soil, along with thyme-leaved speedwell (*Veronica serpyllifolia*), enchanter's nightshade, sensitive fern, daisy fleabane, eastern bracken fern (*Pteridium aquilinum*), common dandelion, deadly nightshade, reed canary grass, lady fern, field horsetail, and sow-thistle.

The following ELCs (vegetation communities) lie within the TCPL easement:

Fresh-Moist Poplar Deciduous Woodland (WODM5-1)

This cultural woodland feature consists of a small copse of trembling aspen seedlings and saplings with a grass/weedy groundcover at south end of TCPL easement, which fronts onto the north side of Salem Road (**Photograph 42 and 43**).

Dry-Fresh Mixed Meadow/Fresh-Moist Mixed Meadow (MEMM3/MEMM4)

This old field feature is contiguous with the mixed forb meadow which is part of the rear manicured back yard of the proposed consent and minor variance severance land (**Photograph 44**). Constituent groundflora includes forbs such as asters and goldenrods, along with grasses, weeds, and ferns. Typical groundcover species include tall goldenrod, Canada goldenrod, New England aster, grass-leaved goldenrod, sensitive fern, horseweed, daisy fleabane, common dandelion, annual bluegrass, reed canary grass, boneset, spotted Joe pye-weed, calico aster, wild carrot, common ragweed, English plantain, common plantain, red clover, white clover, and cow vetch.

Common Reed Graminoid Mineral Meadow Marsh (MAMM1-12)

This wetland feature consists of a dense sward of common reed graminoid mineral meadow marsh outside of EPA designation and lies partially within the proposed severance land (**Photograph 45**).



Photograph 41. View inside part of a small stand of dry-fresh white cedar-poplar mixed forest (FOMM4-2) along east edge of TCPL, with a barren to sparse groundcover, along west edge of part of EPA designation



Photograph 42. Northward view of TransCanada PipeLine (TCPL), containing a small copse of fresh-moist immature poplar deciduous woodland (WODM5-1), along west edge of EPA designation



Photograph 43. Southward view of TransCanada PipeLine (TCPL) easement, containing a small copse of fresh-moist immature poplar deciduous woodland (WODM5-1), along west edge of EPA designation



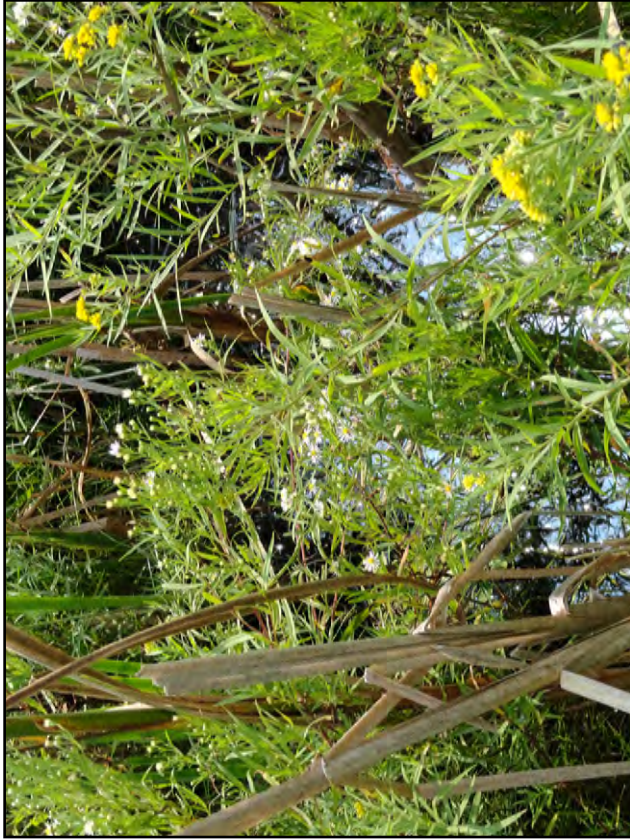
Photograph 44. South view of part of dry-fresh mixed meadow/fresh-moist mixed meadow (MEMM3/MEMM4) within TCPL easement, along west edge of EPA designation



Photograph 45. View of west edge of common reed graminoid mineral meadow marsh (MAMM1-12), mostly within west edge of the TCPL easement, an inclusion within MEMM3/MEMM4, and outside of the EPA designation



Photograph 46. Northward view of cattail mineral shallow marsh (MASM1-1), at north property edge within the TransCanada PipeLine (TCPL) easement, dominated by narrow-leaved cattails and along west edge of EPA designation



Photograph 47. Upgradient view of a reach of Bear Creek tributary, with diffuse drainage and no defined banks, lies within part of feature SWTM3-6/MAMM3-1, part of the SSP "Linkage" area



Photograph 48. Upgradient view of part of reach of Bear Creek tributary, at north side of Salem Road culvert, lies within part of SWTM3-6/MAMM3-1, part of the wetland mosaic, within the EPA designation and SSP "Linkage" area

Cattail Mineral Shallow Marsh (MASM1-2)

This wetland feature is comprised of a small pocket of narrow-leaved cattail mineral marsh along north property boundary (**Photograph 46**).

3.4.2 Floristics

The typical and inherent plant species or floristics within each vegetation community (ELCs on **Figure 3**) are listed on **Table 1** and **Table 2**, as well as the sub-sections listed-above in the **West Parcel (Part A)** and the **East Parcel (Part B)**. Given that the proposed consent/minor variance area consists of an as-built house with cultural amenities and the proposed ZBA & Draft Plan of Subdivision area consists of MEMM/graded fill, a master plant species list segregated by ELCs was not deemed necessary or warranted, as it would not provide added data value.

3.4.3 Tree Inventory

As stated in Section **2.3.1**, a stand-alone Arborist Report and Tree Preservation Plan – 500 Salem Road, City of Barrie has been prepared Azimuth (2021). In addition, a stand-alone Arbor Plan – Existing Conditions, Tree Preservation Plan 1 & 2 and Landscape Details has been prepared (Landmark Environmental Group Ltd. 2021).

3.5 Wildlife and Wildlife Habitat

The inventory results of the wildlife surveys and the results of the wildlife habitat evaluations are addressed in the following sub-sections. Also included are a due diligence in terms of Species at Risk – SAR and Significant Wildlife Habitat – SWH evaluations. Based on the field work undertaken by Azimuth in 2020 and 2021, there were no SAR wildlife found on or adjacent to the property.

3.5.1 Amphibians

In 2020, amphibian calling was heard from the central wetland on the property. Calling species included American toad (*Bufo americanus*) and spring peeper (*Pseudacris crucifer*). No calling was heard elsewhere on the property or from adjacent lands during the formal surveys. Control site observations on the same evening indicated calling by American toad, green frog (*Lithobates clamitans*) and spring peeper.

For the early-spring amphibian survey conducted on April 8, 2021, no amphibian calling was heard on the property, but American toad and spring peeper were calling from a wetland on the south side of Salem Road. Control site observations on the same evening indicated calling by spring peeper, American toad and wood frog (*Lithobates sylvatica*). During the mid-spring survey on May 18, 2021, no calling was heard on the property but spring peeper and gray treefrog (*Dryophytes versicolor*) were calling on the south side of Salem Road. Control site observations on the same evening indicated calling by spring peeper and gray treefrog.

3.5.2 Dawn Breeding Birds

During the dawn breeding bird point counts, 27 bird species were detected on the property (**Table 3**).

3.5.3 Nocturnal Birds

No eastern whip-poor-will (*Antrostomus vociferus*) or common nighthawk (*Chordeiles minor*) were heard on the property or adjacent lands during the two nocturnal bird surveys. Control site observations on the same evenings at the same times indicated calling by eastern whip-poor-will.

3.5.4 Incidental Wildlife

Deer tracks were observed on the property on June 14, 2020. On June 30, 2020 two deer were observed on the property. One green frog was calling on lands south of Salem Road, east of the Bear Creek Tributary. One red squirrel (*Tamiasciurus hudsonicus*) was seen on the south side of Salem Road. No incidental wildlife was noted while attending the property in 2021 for the early- and mid-spring evening amphibian surveys.

3.6 Species at Risk (SAR)

The SAR assessment (**Table 4**) considers fully SAR with potential to occur in the study area. Based on this assessment, in combination with vegetation communities and other environmental features observed during the field program, no SAR were identified.

Only species designated as Endangered (END) or Threatened (THR) receive individual and habitat protections under Section 9 and Section 10 of the **Endangered Species Act, 2007** (Province of Ontario 2007). Special Concern species are further discussed in the context of Significant Wildlife Habitat (Habitat for Special Concern and Rare Wildlife Species) in **Section 3.7**.

3.7 Significant Wildlife Habitat

An assessment of the potential for SWH in the study area was conducted using Significant Wildlife Habitat Technical Guide (OMNR, 2000) criteria and the accompanying the Ecoregion 6E Criteria Schedules (MNRF, 2015b). An assessment of Candidate SWH categories relative to documented ELC vegetation communities and habitats in the study area is presented in **Table 5**. The following Candidate SWH types were determined or have potential to be present within the study area based on the results of the field program, organized by habitat type below:

- Amphibian Breeding Habitat (Woodland); and,
- Amphibian Breeding Habitat (Wetlands).

Table 3. Bird Species List, 500 Salem Road, Barrie, 2020

Family	Scientific Name	English Common Name	Point Count Station 1 ^C		Point Count Station 2 ^C		Point Count Station 3 ^C		Point Count Station 4 ^C		Point Count Station 5 ^C		Point Count Station 6 ^C		Point Count Station 7 ^C		Breeding Evidence ^D	S-Rank	G-Rank	SARO Status
			14 June ^A	30 June ^B	14 June ^A	30 June ^B	14 June ^A	30 June ^B	14 June ^A	30 June ^B	14 June ^A	30 June ^B	14 June ^A	30 June ^B	14 June ^A	30 June ^B				
Bombycillidae	<i>Bombycilla cedrorum</i>	Cedar Waxwing		C(3)							H,C(2)						Po	S5B	G5	
Cardinalidae	<i>Cardinalis cardinalis</i>	Northern Cardinal	S(1)	S(1)		S(1)								S(1)	S(1)		Pr	S5	G5	
Cardinalidae	<i>Passerina cyanea</i>	Indigo Bunting					S(1)	S(1)			S(1)			S(1)			Pr	S4B	G5	
Charadriidae	<i>Charadrius vociferus</i>	Killdeer									H(2)						Po	S5B,S5N	G5	
Columbidae	<i>Zenaida macroura</i>	Mourning Dove	S(1)	S(1)				FO(1)									Pr	S5	G5	
Corvidae	<i>Corvus brachyrtyncos</i>	American Crow	C(1)				C(2)*				FO(1)	H,C(2)*	C(1)	H,C(1)	C(5)*		Pr	S5B	G5	
Corvidae	<i>Cyanocitta cristata</i>	Blue Jay			S(1)*	C(2)*			H(3)	H,C(3)		C(3)*		C(3)			Pr	S5	G5	
Emberizidae	<i>Melospiza melodia</i>	Song Sparrow		S(2)*		S(1)			S(1)		S(1)	S(1)*				S(1)	Pr	S5B	G5	
Fringillidae	<i>Carduelis tristis</i>	American Goldfinch	S(1)					FO,C(3)	H,S(2)	H,S(1)		H,S(1)*					Pr	S5B	G5	
Icteridae	<i>Agelaius phoeniceus</i>	Red-winged Blackbird					P, S,C(4)		H,S,P,S(1)						S(2)		Co	S4	G5	
Icteridae	<i>Molothrus ater</i>	Brown-headed Cowbird			S(1)				S(1)				S(1)	S(1)			Pr	S4B	G5	
Icteridae	<i>Quiscalus quiscula</i>	Common Grackle					H(1)										Po	S5B	G5	
Laridae	<i>Larus argentatus</i>	Herring Gull							FO(1)								-	S5	G5	
Mimidae	<i>Dumetella carolinensis</i>	Grey Catbird					S(2)										Po	S4B	G5	
Paridae	<i>Poecile atricapillus</i>	Black-capped Chickadee	S(1)	S(2)*	S(1)			S(4)*					S(2)		S(2)	S(1)*	Pr	S5	G5	
Parulidae	<i>Geothlypis trichas</i>	Common Yellowthroat										S(1)*		S(1)*			Po	S5B	G5	
Parulidae	<i>Seiurus aurocapilla</i>	Ovenbird			S(1)*												Po	S4B	G5	
Passerellidae	<i>Passerculus sandwichensis</i>	Savannah Sparrow										S(1)*					Po	S4B	G5	
Passerellidae	<i>Spizella passerina</i>	Chipping Sparrow							S(1)								Po	S4B	G5	
Passerellidae	<i>Spizella pusilla</i>	Field Sparrow					S(1)*				S(1)*	S(1)*		S(1)*			Pr	S4B	G5	
Picidae	<i>Colaptes auratus</i>	Northern Flicker									S(1)*	S(1)*		S(1)*			Pr	S4B	G5	
Sittidae	<i>Sitta canadensis</i>	Red-breasted Nuthatch		S(1)*											S(1)		Po	S5	G5	
Sturnidae	<i>Sturnus vulgaris</i>	European Starling	H(2)	H(2)*													Pr	SNA	G5	
Troglodytidae	<i>Troglodytes aedon</i>	House Wren	S(2)	S(1)*	S(1)	S(1)		S(1)	S(1)	S(1)	S(1)		S(1)	S(1)	S(1)	S(1)	Pr	S5B	G5	
Tyrannidae	<i>Empidonax alnorum</i>	Alder Flycatcher										S(1)*				S(1)	Po	S4B	G5	
Tyrannidae	<i>Sayornis phoebe</i>	Eastern Phoebe		S(1)		S(1)											Po	S5B	G5	
Vireonidae	<i>Vireo olivaceus</i>	Red-eyed Vireo			S(1)												Po	S5B	G5	

¹Nomenclature based on Ontario Ministry of Natural Resources (OMNR), Natural Heritage Information Centre (NHIC) database - <http://nhic.mnr.gov.on.ca/MNR/nhic/species.cfm>.

Surveys Conditions:

^AJune 14, 2020; Time 0614-0704; Temperature 5°C; Wind B1; Cloud Cover 0%; Precipitation None; Observer L. Moran

^BJune 30, 2020; Time 0741-0821; Temperature 19°C; Wind B2; Cloud Cover 0%; Precipitation None; Observer L. Moran

*Species on adjacent lands

^COBBA Breeding Evidence Codes:

The number in brackets represents the largest number of individuals observed during one period at that point location.

F/O - Fly Over

X - Species observed in its breeding season (no breeding evidence)

POSSIBLE

H - Species observed in its breeding season in suitable nesting habitat

S, C - Singing male present, or breeding calls heard, in suitable nesting habitat in nesting season.

PROBABLE

A - Agitated behaviour or anxiety calls of an adult.

N - Nest building or excavation of nest hole.

P -Pair observed in suitable nesting habitat in nesting season.

T - Permanent territory presumed through registration of territorial behaviour (e.g. song) on at least two days, a week or more apart, at the same place.

CONFIRMED

DD - Distraction display or injury feigning.

FY - Recently fledged young or downy young, including incapable of sustained flight.

^DBreeding Evidence:

Co - Confirmed breeding on or adjacent to property.

Pr - Probably breeding on or adjacent to property.

Po - Possibly breeding on or adjacent to property.

None - Species observed but no evidence of breeding on or adjacent to property.

^EConservation Rankings: Committee on the Status of Endangered Species in Canada (COSEWIC) Wildlife Species at Risk Report (October 2015), Species at Risk Public Registry https://www.registrelep-sararegistry.gc.ca/sar/index/default_e.cfm, Ontario

Ministry of Natural Resources and Forestry (MNR) Species at Risk in Ontario (SARO) <https://www.ontario.ca/environment-and-energy/species-risk-ontario-list>, Natural Heritage Information Centre (http://nhic.mnr.gov.on.ca/nhic_.cfm).

S-Rank = Sub-national/provincial scale (from 1-5), S1 - Extremely Rare, S2 - Very Rare, S3 - Rare to Uncommon, S4 - Common, S5 - Very Common .

G-Rank = Global scale (from 1 - "Critically Imperiled" to 5 - "Secure" or common), G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, G5 - Secure .

B = Breeding Populations, N = Non-breeding Populations; SARO: EXT - Extirpated, END - Endangered, THR - Threatened, SC - Special Concern, Blank - Not at Risk in Ontario.

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species ¹	Initial Assessment
American Hart's-tongue Fern	<i>Asplenium scolopendrium</i> var. <i>americanum</i>	SC	SC	Grows on calcareous rocks in deep shade on slopes in deciduous forest. Most occurrences are in maple-beech forest (MNRF, 2016). ESA Protection: N/A	Species not found during surveys.
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	Ledges and walls of man-made structures such as buildings, barns, boathouses, garages, culverts and bridges. Also nest in caves, holes, crevices and cliff ledges (COSEWIC, 2011c). ESA Protection: Species and general habitat protection	No old buildings or barns, box culverts, bridges etc occur in the study area. The species was not observed during surveys.
Black Ash	<i>Fraxinus nigra</i>	END	No Status	Facultative wetland tree species frequently found in floodplain forests, swamps, seepage areas, shoreline margins and fens. Occupied sites are generally seasonally-flooded (COSEWIC, 2018). ESA Protection: Species and general habitat protection (ESA protections take effect January 27, 2024)	Species not found during surveys.
Black Tern	<i>Chlidonias niger</i>	SC	No status	Colonial nesters typically found within marshes. Its preferred nesting habitat is a hemi-marsh (i.e. a wetland with 50:50 open water and emergent vegetation). Nests are usually built on an upturned cattail root, floating vegetation mat or patch of mud (Cadman <i>et al.</i> , 2007). ESA Protection: N/A	Key habitat requirements not observed in the study area. Species not found during surveys.
Blanding's Turtle	<i>Emydoidea blandingii</i>	THR	END	Blanding's Turtles are a primarily aquatic species that prefer wetland habitats, lakes, ponds, slow-moving streams, etc., however they may utilize upland areas to search for suitable basking and nesting sites. In general, preferred wetland sites are eutrophic and characterized by clear, shallow water, with organic substrates and high density of aquatic vegetation (COSEWIC, 2005a). ESA Protection: Species and general habitat protection	Key habitat requirements (e.g., open wetlands with abundant open water with some emergent aquatic vegetation, lakes, ponds) not found in study area. No records in iNaturalist.
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	Nests primarily in forage crops (e.g. hayfields and pastures) dominated by a variety of species such as clover, Timothy, Kentucky Bluegrass, tall grass, and broadleaved plants. Also occurs in wet prairie, graminoid peatlands, and abandoned fields dominated by tall grasses. Does not generally occupy fields of row crops (e.g., corn, soybeans, wheat) or short-grass prairie. Sensitive to habitat size and has lower reproductive success in small habitat fragments (COSEWIC, 2010b). ESA Protection: Species and general habitat protection	Habitat for the species not found in the study area. An NHIC record indicates species occurs in the general area (square 17PK0107), but would not be expected to occur in association with property.
Broad Beech Fern	<i>Phyopteris hexagonoptera</i>	SC	SC	Rich soils in deciduous forests such as Maple-Beech forests (MNRF, 2016). ESA Protection: N/A	Species not found during surveys.
Butternut	<i>Juglans cinerea</i>	END	END	Commonly found in riparian habitats, but is also found in rich, moist, well-drained loams, and well-drained gravels. Butternut is intolerant of shade (COSEWIC, 2003). ESA Protection: Species and general habitat protection	An NHIC record indicates species occurs in the general area (Square 17PK0107), but species not found during surveys. Not considered further in our assessment.

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species ¹	Initial Assessment
Canada Warbler	<i>Cardellina canadensis</i>	SC	THR	Wet, mixed deciduous-coniferous forests with a well developed shrub layer. Shrub marshes, Red-Maple stands, cedar stands, Black Spruce swamps, larch and riparian woodlands along rivers and lakes (COSEWIC, 2008b). ESA Protection: N/A	Potentially suitable forest habitat occurs in study area but not in association with rivers or lakes. Species not observed during surveys. Not considered further in our assessment.
Cerulean Warbler	<i>Dendroica cerulea</i>	THR	END	Associated with large tracts of mature deciduous forest with tall trees and an open understory. Found in both wet bottomland forests and upland areas (COSEWIC, 2010a). ESA Protection: Species and general habitat protection	Key habitat requirements for the species (<i>e.g.</i> , large areas of mature deciduous forest) not found. The species would not be expected to occur, and was not observed during surveys.
Common Nighthawk	<i>Chordeiles minor</i>	SC	THR	Open habitats including sand dunes, beaches recently logged/burned over areas, forest clearings, short grass prairies, pastures, open forests, bogs, marshes, lakeshores, gravel roads, mine tailings, quarries, and other open relatively clear areas (COSEWIC, 2007a). ESA Protection: N/A	Potentially suitable habitat for the species occurs in the study area but species not detected during surveys. Not considered further in our assessment.
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR	Most common in grassland, pastures, savannahs, as well as anthropogenic grassland habitats, including hayfields, weedy meadows, young orchards, golf courses, restored surface mines, <i>etc.</i> Occasionally nest in row crop fields such as corn and soybean, but there are considered low-quality habitat. Large tracts of grassland are preferred over smaller fragments and the minimum area required is estimated at 5ha (COSEWIC, 2011b). ESA Protection: Species and general habitat protection	Habitat for the species not found in the study area. An NHIC record indicates species occurs in the general area (square 17PK0107), but would not be expected to occur in association with property.
Eastern Musk Turtle	<i>Sternotherus oderatus</i>	SC	SC	Inhabit littoral zones of waterways such as rivers, lakes, bays, streams, ponds, canals, and swamps with slow to no current and soft bottoms. During the active season they prefer shallow water (<2m) with abundant vegetation. Most are found close to shore and do not venture onto land except to nest or access adjacent wetlands (COSEWIC, 2012a). ESA Protection: N/A	A small stream is present on the property but is generally dominated by emergent vegetation/diffuse wetland areas. Species would not be expected to occur.
Eastern Small-footed Myotis	<i>Myotis Lilebii</i>	END	END	Generally occurs in mountainous or rocky regions as well as in buildings, on the face of rock bluffs and beneath slabs of rock and stones. Hibernation is typically confined to caves and old mines (Best and Jennings, 1997). ESA Protection: Species and general habitat protection	Key roosting habitat requirements (<i>e.g.</i> , rocky areas, bluffs, old suitable anthropogenic structures, caves, old mines) for the species not found. Hibernation habitat not present. The species would not be expected to occur.
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	THR	THR	Semi-open forests or patchy forests with clearings, such as barrens or forests that are regenerating following major disturbances, are preferred nesting habitats (COSEWIC, 2009a). ESA Protection: Species and general habitat protection	Potentially suitable habitat for the species occurs in the study area but species not detected during surveys. Not considered further in our assessment.

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species ¹	Initial Assessment
Eastern Wood-pewee	<i>Contopus virens</i>	SC	SC	Mostly in mature and intermediate-age deciduous and mixed forests having an open understory. It is often associated with forests dominated by Sugar Maple and oak. Usually associated with forest clearings and edges within the vicinity of its nest (COSEWIC, 2012c). ESA Protection: N/A	Key habitat requirements not present in the study area and species not detected during surveys.
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	SC	THR	Areas of early successional scrub surrounded by mature forests including dry uplands, swamp forests, and marshes (COSEWIC, 2006a). ESA Protection: N/A	Key habitat requirements for the species generally not found in the study area. Species could conceivably be found along forest edges but habitat considered marginal. Species not expected to occur and not found during surveys.
Grasshopper Sparrow <i>pratinensis</i> subspecies	<i>Ammodramus savannarum pratinensis</i>	SC	SC	Typically breeds in large human-created grasslands (≥ 5 ha), such as pastures and hayfields, and natural prairies, such as alvars, characterized by well-drained, often poor soil dominated by low, sparse perennial herbaceous vegetation (COSEWIC, 2013b). ESA Protection: N/A	Key habitat requirements do not occur in study area. The species was not observed during breeding bird surveys and would not be expected to occur.
Henslow's Sparrow	<i>Ammodramus henslowii</i>	END	END	Requires grassland habitat and occurs more frequently and at higher densities in large patches of suitable habitat. Nests in tallgrass prairie, wet meadow, and marsh habitats as well as agricultural grasslands, lightly grazed pasture and grasslands on reclaimed surface mines (COSEWIC, 2011a). ESA Protection: Species and general habitat protection	Key habitat requirements do not occur in study area. The species was not observed during breeding bird surveys and would not be expected to occur.
Little Brown Myotis	<i>Myotis lucifugus</i>	END	END	Forests and regularly aging human structures as maternity roost sites. Regularly associated with attics of older buildings and barns for summer maternity roost colonies. Overwintering sites are characteristically mines or caves (MNR, 2014) (COSEWIC, 2013a). ESA Protection: Species and general habitat protection	Habitat preferences for SAR bats (<i>i.e.</i> larger trees with suitable bat snag features) generally considered to not occur in the study area. Wooded portions of study area more successional.
Loggerhead Shrike	<i>Lanius ludovicianus</i>	END	END (<i>mirgans</i> subspecies)	Breeding habitat characterized by open areas dominated by grasses and/or forbs, interspersed with scattered shrubs or small trees and bare ground. Suitable habitat includes pasture, old fields, prairie, savannah, pinyon-juniper woodland, shrub-steppe and alvar (COSEWIC, 2014a). ESA Protection: Species and general habitat protection	Key open habitat requirements not present in study area. Species not observed and not found during the field program.
Massasauga (Great Lakes - St. Lawrence population)	<i>Sistrurus catenatus</i>	THR	THR	In Georgian Bay, Massasaugas use bedrock barrens, conifer swamps, beaver meadows, fens, bogs, and shoreline habitats. On the upper Bruce Peninsula, forested habitats are used during hibernation and open, wetland, and edge habitat with canopy closure <50% in mid-late summer (COSEWIC, 2012e). ESA Protection: Species and general habitat protection	Property not near Georgian Bay.

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species ¹	Initial Assessment
Monarch	<i>Danaus plexippus</i>	SC	SC	Breeding habitat is confined to sites where milkweeds, the sole food of caterpillars, grow. Milkweeds grow in a variety of environments, including meadows in farmlands, along roadsides and in ditches, open wetlands, dry sandy areas, short and tall grass prairie, river banks, irrigation ditches, and valleys, and south-facing hills (COSEWIC, 2010c). ESA Protection: N/A	Habitat generally considered not suitable for the species.
Northern Myotis	<i>Myotis septentrionalis</i>	END	END	Maternity roost sites are generally located within deciduous and mixed forests and focused in snags including loose bark and cavities of trees. Overwintering sites are characteristically mines or caves (COSEWIC, 2013a). ESA Protection: Species and general habitat protection	Habitat preferences for SAR bats (i.e. larger trees with suitable bat snag features) generally considered to not occur in the study area. Wooded portions of study area more successional.
Northern Map Turtle	<i>Graptemys geographica</i>	SC	SC	Inhabits rivers and lakes where it basks on emergent rocks, banks, logs and fallen trees. Prefer shallow, soft-bottomed aquatic habitats with exposed objects for basking (COSEWIC, 2012b). ESA Protection: N/A	Key habitat requirements (e.g., rivers, lakes with basking habitat) not present in study area. Species would not be expected to occur.
Olive-sided Flycatcher	<i>Contopus cooperi</i>	SC	THR	Natural forest openings, forest edges near natural openings (such as wetlands) or open to semi-open forest stands. Occasionally human made openings (such as clear cuts). Presence of tall snags and residual live trees is essential (COSEWIC, 2007b). ESA Protection: N/A	Species not found during surveys.
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	END	END	Occurs in open deciduous forests, particularly those dominated by oak and beech, grasslands, forest edges, orchards, pastures along rivers and roads, urban parks, golf courses, cemeteries, beaver ponds and timber stands that have been treated with herbicides (COSEWIC, 2007c). ESA Protection: N/A	Key habitat requirements considered to not be present in the study area. Species would not be expected to occur, and not detected during surveys.
Snapping Turtle	<i>Chelydra serpentina</i>	SC	SC	Habitat is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Often located in ponds, sloughs, shallow bays or river edges and slow streams, or areas combining several of these wetland habitats (COSEWIC, 2008a). ESA Protection: N/A	Key habitat requirements not present in the study area.
Tri-colored Bat	<i>Perimyotis subflavus</i>	END	END	Maternity roost sites include forests and modified landscapes (barns or human-made structures). Overwintering sites include mines and caves (COSEWIC, 2013a). ESA Protection: Species and general habitat protection	Habitat preferences for SAR bats (i.e. larger trees with suitable bat snag features) generally considered to not occur in the study area. Wooded portions of study area more successional.

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species ¹	Initial Assessment
West Virginia White	<i>Pieris virginianensis</i>	SC	No status	This species lives in moist, deciduous woodlands and requires a supply of toothwort, a small, spring-blooming plant that is a member of the mustard family, since it is the only food source for the larvae (MNR, 2014). ESA Protection: N/A	Suitable moist deciduous forests not present in study area. No expectation of species occurring.
Wood Thrush	<i>Hylocichla mustelina</i>	SC	THR	Found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches (COSEWIC, 2012d). ESA Protection: N/A	Key habitat requirements not in the study area. Species not detected.
Wood Turtle	<i>Glyptemys insculpta</i>	END	THR	Rivers and streams with sand or gravel bottoms and prefers clear, meandering streams with moderate current. Riparian areas with diverse, patchy cover are most commonly used across the range (COSEWIC, 2007d). ESA Protection: Species and general habitat protection	Key habitat requirements not present in study area. Species would not be expected to occur.
Yellow Rail	<i>Coturnicops noveboracensis</i>	SC	SC	Nest in wet marshy areas of short grass-like vegetation. The habitat must remain wet throughout the breeding season (COSEWIC, 2009b). ESA Protection: N/A	Key habitat requirements generally not present in study area. Marsh habitat likely not wet throughout season. Species not detected.

¹ Habitat as outlined within the MNR's Species at Risk in Ontario website files (<https://www.ontario.ca/environment-and-energy/species-risk-ontario-list>), or Species Specific COSEWIC Reports referenced in this document.

Species at Risk in Ontario List (June 13, 2017)

Best, T., and J. Jennings. 1997. Mammalian Species, *Myotis leibii*. The American Society of Mammalogists. No. 547, pp. 1-6, 5 figs.
 Cadman, M., D. Sutherland, G. Beck, D. Lepage and A. Couturier. 2007. Atlas of the Breeding Birds of Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field
 COSEWIC. 2003. COSEWIC assessment and status report on the Butternut *Juglans cinerea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.
 COSEWIC. 2005a. COSEWIC assessment and update status report on the Blanding's Turtle *Emydoidea blandingii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 40 pp.
 COSEWIC. 2006a. COSEWIC assessment and status report on the Golden-winged Warbler *Vermivora chrysoptera* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 30 pp.
 COSEWIC. 2007a. COSEWIC assessment and status report on the Common Nighthawk *Chordeiles minor* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 35 pp.
 COSEWIC. 2007b. COSEWIC assessment and status report on the Olive-sided Flycatcher *Contopus cooperi* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 25 pp.
 COSEWIC. 2007c. COSEWIC assessment and status report on the Red-headed Woodpecker *Melanerpes erythrocephalus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.
 COSEWIC. 2007d. COSEWIC assessment and update status report on the Wood Turtle *Glyptemys insculpta* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 42 pp.
 COSEWIC. 2008a. COSEWIC assessment and status report on the Snapping Turtle *Chelydra serpentina* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.
 COSEWIC. 2008b. COSEWIC assessment and status report on the Canada Warbler *Wilsonia canadensis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 35 pp.
 COSEWIC. 2009a. COSEWIC assessment and update status report on the Whip-poor-will *Caprimulgus vociferus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.
 COSEWIC. 2009b. COSEWIC assessment and status report on the Yellow Rail *Coturnicops noveboracensis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.
 COSEWIC. 2010a. COSEWIC assessment and update status report on the Cerulean Warbler *Dendroica cerulea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.
 COSEWIC. 2010b. COSEWIC assessment and update status report on the Bobolink *Dolichonyx oryzivorus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 42 pp.
 COSEWIC. 2010c. COSEWIC assessment and status report on the Monarch *Danaus plexippus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 43 pp.
 COSEWIC. 2011a. COSEWIC assessment and update status report on the Henslow's Sparrow *Ammodramus henslowii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 37 pp.
 COSEWIC. 2011b. COSEWIC assessment and update status report on the Eastern Meadowlark *Sturnella magna* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.
 COSEWIC. 2011c. COSEWIC assessment and update status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp.
 COSEWIC. 2012a. COSEWIC assessment and status report on the Eastern Musk Turtle *Sternotherus odoratus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 68 pp.
 COSEWIC. 2012b. COSEWIC assessment and status report on the Northern Map Turtle *Graptemys geographica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 63 pp.
 COSEWIC. 2012c. COSEWIC assessment and status report on the Eastern Wood-pewee *Contopus virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp.
 COSEWIC. 2012d. COSEWIC assessment and status report on the Wood Thrush *Hylocichla mustelina* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.
 COSEWIC. 2012e. COSEWIC assessment and update status report on the Massasauga *Sistrurus catenatus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 84 pp.
 COSEWIC. 2013a. COSEWIC assessment and update status report on the Little Brown Myotis *Myotis lucifugus*, Northern Myotis *Myotis septentrionalis* and Tri-colored Bat *Perimyotis subflavus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.
 COSEWIC. 2013b. COSEWIC assessment and status report on the Grasshopper Sparrow *Ammodramus savaannarum pratensis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 36 pp.
 COSEWIC. 2014a. COSEWIC assessment and update status report on the Loggerhead Shrike *Lanius ludovicianus excubitorides* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 51 pp.
 Ministry of Natural Resources and Forestry (MNR). 2014. Eastern Small-footed Bat. Queen's Printer for Ontario. <https://www.ontario.ca/environment-and-energy/eastern-small-footed-bat>

Table 5. Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E, 500 Salem Road EIS, 2020

Table 1.1 Seasonal Concentrations of Areas of Animals

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Stopover and Staging Areas (Terrestrial) Rationale: Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid-March to May). - Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. - Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available. <u>Information Sources</u> - Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. - Reports and other information available from Conservation Authorities - Sites documented through waterfowl planning processes (e.g. EHJV implementation plan) - Field Naturalist Clubs - Ducks Unlimited Canada - Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” - Any mixed species aggregations of 100 or more individuals required. - The flooded field ecosite habitat plus a 100-300m radius area, dependant on local site conditions and adjacent land use is the significant wildlife habitat. - Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). - SWHMiST Index #7 provides development effects and mitigation measures.	The wildlife habitat is not present in study area.
Waterfowl Stopover and Staging Areas (Aquatic) Rationale: Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	- Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. - These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). <u>Information Sources</u> - Environment Canada - Naturalist clubs often are aware of staging/stopover areas - OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. - Sites documented through waterfowl planning processes (e.g. EHJV implementation plan) - Ducks Unlimited projects - Element occurrence specification by Nature Serve: http://www.natureserve.org - Natural Heritage Information Centre (NHIC) Waterfowl Concentration Areas	Studies carried out and verified presence of: - Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days. - Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. - The combined area of the ELC ecosites and a 100m radius area is the SWH. - Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). - SWHMiST Index #7 provides development effects and mitigation measures.	MAS and SWD ecosites are present on the property. The MAS ELC polygon is very small. Listed species not observed.

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Shorebird Migratory Stopover Area Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird’s Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	- Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. - Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. - Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Information Sources</u> - Western hemisphere shorebird reserve network - Canadian Wildlife Service (CWS) Ontario Shorebird Survey - Bird Studies Canada - Ontario Nature - Local birders and naturalist clubs - Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: - Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) - Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. - The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #8 provides development effects and mitigation measures.	MAM ELC ecosite is present on the property but not associated with shorelines of lakes, rivers, beach or bar areas. Listed species not observed. The property would not be expected to provide the habitat function.
Raptor Wintering Area Rationale: Sites used by multiple species of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Special Concern: Short-eared Owl Bald Eagle	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. <u>Bald Eagle:</u> Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	- The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. - Raptor wintering sites (hawk/owl) need to be > 20 ha with a combination of forest and upland. - Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. - Field area of the habitat is to be windswept with limited snow depth or accumulation. - Eagle sites have open water, large trees and snags available for roosting. <u>Information Sources:</u> - OMNRF Ecologist or Biologist Field Naturalist Clubs - Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area - Data from Bird Studies Canada - Results of Christmas Bird Counts Reports and other information available from Conservation Authorities.	Studies confirm the use of these habitats by: - One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species. - To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. - The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #10 and #11 provides development effects and mitigation measures.	Property does not provide the combination of field/upland forest habitat to provide raptor wintering function.
Bat Hibernacula	Big Brown Bat	Bat Hibernacula may be	Hibernacula may be found in caves, mine shafts,	All sites with confirmed hibernating bats are SWH.	No caves, mine shafts, underground foundations

Table 5 (20-222)

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Rationale: Bat hibernacula are rare habitats in all Ontario landscapes.	Tri-coloured Bat	found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	underground foundations and Karsts. - Active mine sites should not be considered as SWH - The locations of bat hibernacula are relatively poorly known. <u>Information Sources</u> - OMNRF for possible locations and contact for local experts - Natural Heritage Information Center (NHIC) Bat Hibernaculum Ministry of Northern - Development and Mines for location of mine shafts. - Clubs that explore caves (<i>e.g.</i> Sierra Club) - University Biology Departments with bat experts.	- The habitat area includes a 200m radius around the entrance of the hibernaculum, for most development types and 1000m for wind farms - Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects. - SWHMiST Index #1 provides development effects and mitigation measures.	and karsts. No suitable habitat on property.
Bat Maternity Colonies Rationale: Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	- Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). - Maternity roosts are not found in caves and mines in Ontario. - Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. - Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. - Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred. <u>Information Sources</u> - OMNRF for possible locations and contact for local experts - University Biology Departments with bat experts.	- Maternity Colonies with confirmed use by; >10 Big Brown Bats >5 Adult Female Silver-haired Bats - The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. - Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #12 provides development effects and mitigation measures.	FOM and SWD forested ecosites occur in the study area, but trees generally considered too successional/young to be deemed suitable potential habitat for roosting bats. Not considered further in our assessment.
Turtle Wintering Areas Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles; ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	- For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. - Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. - Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. <u>Information Sources</u> - EIS studies carried out by Conservation Authorities. - Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. - OMNRF Ecologist or Biologist - Field Naturalist clubs - Natural Heritage Information Center (NHIC)	- Presence of 5 over-wintering Midland Painted Turtles is significant. - One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. - The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. - Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) - Congregation of turtles is more common where wintering areas are limited and therefore significant - SWHMiST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	SWD, SWM, and MAS ELC community classes present in study area. No turtles were observed on the property.
Reptile	Snakes:	For all snakes, habitat may	For snakes, hibernation takes place in sites located	Studies confirming:	No features identified in the study area that

Table 5 (20-222)

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Hibernaculum Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Special Concern: Milksnake Eastern Ribbonsnake Lizard: Special Concern (Southern Shield population): Five-lined Skink	be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. <u>Information Sources</u> • In spring, local residents or landowners may have observed the emergence of snakes on their property (<i>e.g.</i> old dug wells). • Reports and other information available from Conservation Authorities. • Field Naturalists clubs • University herpetologists • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	• Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (<i>e.g.</i> foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) • <u>Note:</u> If there are Special Concern Species present, then site is SWH • <u>Note:</u> Sites for hibernation possess specific habitat parameters (<i>e.g.</i> temperature, humidity, <i>etc.</i>) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (<i>e.g.</i> mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • SWHMiST Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	could provide suitable reptile hibernaculum.
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff) Rationale: Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. <u>Information Sources</u> • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas • Bird Studies Canada; <i>NatureCounts</i> http://www.birdscanada.org/birdmon/ • Field Naturalist Clubs.	Studies confirming: • Presence of 1 or more nesting sites with 8or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #4 provides development effects and mitigation measures.	No exposed/eroding soil banks associated with study area that would be suitable for nesting by the species. Species not observed. The study area would not be expected to provide the habitat function.
Colonially-Nesting	Great Blue Heron	SWM2	• Nests in live or dead standing trees in wetlands, lakes,	Studies confirming:	SWM and SWD ELC ecosites are present on the

Table 5 (20-222)

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Bird Breeding Habitat (Tree/Shrubs) Rationale: Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Black-crowned Night-Heron Great Egret Green Heron	SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. - Most nests in trees are 11 to 15 m from ground, near the top of the tree. <u>Information Sources</u> - Ontario Breeding Bird Atlas, colonial nest records. - Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). - Natural Heritage Information Center (NHIC) Mixed Wader Nesting Colony - Aerial photographs can help identify large heronries. - Reports and other information available from CAs. - MNRF District Offices - Local naturalist clubs	- Presence of 5 or more active nests of Great Blue Heron or other listed species. - The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. - Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. - SWHMiST Index #5 provides development effects and mitigation measures.	property, but trees generally too small for nesting use by the species. Property not proximal to significant open areas of water. Species not observed. The property would not be expected to provide the habitat function.
Colonially-Nesting Bird Breeding Habitat (Ground) Rationale: Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer’s Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer’s Blackbird) MAM1 – 6; MAS1 – 3; CUM CUT CUS	- Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. - Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands. <u>Information Sources</u> - Ontario Breeding Bird Atlas , rare/colonial species records. - Canadian Wildlife Service - Reports and other information available from CAs. - Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area - MNRF District Offices - Field Naturalist clubs	Studies confirming: - Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. - Presence of 5 or more pairs for Brewer’s Blackbird. - Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. - The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. - Studies would be done during May/June when actively nesting. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #6 provides development effects and mitigation measures.	Not a rocky island/peninsula or on a lake/large river.
Migratory	Painted Lady	Combination of ELC	A butterfly stopover area will be a minimum of 10 ha in	Studies confirm:	Property is not located within 5km of Lake

Table 5 (20-222)

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Butterfly Stopover Areas Rationale: Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Red Admiral <u>Special Concern</u> Monarch	Community Series; need to have present one Community Series from each land class: <u>Field:</u> CUM CUT CUS <u>Forest:</u> FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario. - The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south. - The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. - Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes. <u>Information Sources</u> - OMNRF (NHIC) - Agriculture Canada in Ottawa may have list of butterfly experts. - Field Naturalist Clubs - Toronto Entomologists Association - Conservation Authorities	- The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. - Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. - MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral’s is to be considered significant. - SWHMiST Index #16 provides development effects and mitigation measures.	Ontario.
Landbird Migratory Stopover Areas Rationale: Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website. All migratory songbirds. Canadian Wildlife Service Ontario website:	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. - If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Ontario are more significant. - Sites have a variety of habitats; forest, grassland and wetland complexes. - The largest sites are more significant. - Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH . <u>Information Sources</u> - Bird Studies Canada - Ontario Nature - Local birders and naturalist club - Ontario Important Bird Areas (IBA) Program	Studies confirm: - Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. - Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #9 provides development effects.	Not located within 5km of Lake Ontario.
Deer Yarding	White-tailed Deer	Note: OMNRF to determine	Deer yarding areas or winter concentration areas	No Studies Required:	The study area is not mapped as a deer yarding

Table 5 (20-222)

Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Areas Rationale: Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in “yards” to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.		this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	(yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. - The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. - OMNRF determines deer yards following methods outlined in “Selected Wildlife and Habitat Features: Inventory Manual”. - Woodlots with high densities of deer due to artificial feeding are not significant.	- Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. - Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). - Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. - If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. - SWHMiST Index #2 provides development effects and mitigation measures.	area (LIO mapping).
Deer Winter Congregation Areas Rationale: Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	- Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. - Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands . - If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. - Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. - Woodlots with high densities of deer due to artificial feeding are not significant. <u>Information Sources</u> - MNRF District Offices - LIO/NRVIS	Studies confirm: - Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. - Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. - Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. - If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. - SWHMiST Index #2 provides development effects and mitigation measures.	FOM, SWM and SWD ecosites are not of sufficient size to be considered for this potential SWH function. No deer winter congregation areas mapped in study area (LIO mapping).

Table 5 (20-222)

Table 1.2.1 Rare Vegetation Communities

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Cliffs and Talus Slopes Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO TAS TAT CLO CLS CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	Most cliff and talus slopes occur along the Niagara Escarpment. <u>Information Sources</u> - The Niagara Escarpment Commission has detailed information on location of these habitats. - OMNRF District - Natural Heritage Information Center (NHIC) has location information available on their website - Field Naturalist clubs - Conservation Authorities	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes - SWHMiST Index #21 provides development effects and mitigation measures.	No cliffs or talus slopes.
Sand Barren Rationale: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%.	A sand barren area >0.5ha in size. <u>Information Sources</u> - MNRF Districts - Natural Heritage Information Center (NHIC) has location information available on their website. - Field Naturalist clubs - Conservation Authorities	- Confirm any ELC Vegetation Type for Sand Barrens - Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.) - SWHMiST Index #20 provides development effects and mitigation measures.	No sand barrens.
Alvar Rationale: Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 Five Alvar Species: 1) <i>Carex crawei</i> 2) <i>Panicum philadelphicum</i> 3) <i>Eleocharis compressa</i> 4) <i>Scutellaria parvula</i> 5) <i>Trichostema brachiatum</i> These indicator species are very specific to Alvars within Ecoregion 6E.	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover.	An Alvar site > 0.5 ha in size. <u>Information Sources</u> - Alvars of Ontario (2000), Federation of Ontario Naturalists. - Ontario Nature – Conserving Great Lakes Alvars. - Natural Heritage Information Center (NHIC) has location information available on their website - OMNRF Districts - Field Naturalist clubs - Conservation Authorities	- Field studies that identify four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. - Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). - The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. - SWHMiST Index #17 provides development effects and mitigation measures.	No alvar.

Rare Vegetation Community	Candidate SWH			Confirmed SWH	Assessment
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Old Growth Forest Rationale: Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. <u>Information Sources</u> • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species are >140 years old, then the area containing these trees is Significant Wildlife Habitat. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present). • The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics. • SWHMiST Index #23 provides development effects and mitigation measures.	No known old growth forest.
Savannah Rationale: Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #18 provides development effects and mitigation measures.	No savannah.
Tallgrass Prairie Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiST Index #19 provides development effects and mitigation measures.	No tallgrass prairie.
Other Rare Vegetation Communities Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M The OMNRF/NHIC will have up to date listing for rare vegetation communities. <u>Information Sources</u> • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field Naturalist clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST Index #37 provides development effects and mitigation measures.	No rare vegetation communities on the property or on adjacent lands.

Table 5 (20-222)

1.2.2 Specialized Habitat for Wildlife

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Nesting Area Rationale: Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. - Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. - Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> - Ducks Unlimited staff may know the locations of particularly productive nesting sites. - OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. - Reports and other information available from Conservation Authorities.	Studies confirmed: - Presence of 3 or more nesting pairs for listed species excluding Mallards, or; - Presence of 10 or more nesting pairs for listed species including Mallards. - Any active nesting site of an American Black Duck is considered significant. - Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. - SWHMiST Index #25 provides development effects and mitigation measures.	MAS ELC ecosite on the property is considered too small to provide the habitat function. MAM, SWD and SWM ecosites present but listed species not detected during surveys. Not considered further in our assessment.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat Rationale: Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey Special Concern Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. - Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy. - Nests located on man-made objects are not to be included as SWH (<i>e.g.</i> telephone poles and constructed nesting platforms). <u>Information Sources</u> - Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. - MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. - Nature Counts, Ontario Nest Records Scheme data. - OMNRF Districts - Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented - Reports and other information available from Conservation Authorities. - Field Naturalists clubs	Studies confirm the use of these nests by: - One or more active Osprey or Bald Eagle nests in an area. - Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. - For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. - For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat. - To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. - Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #26 provides development effects and mitigation measures.	Forested areas present are not directly adjacent to suitable aquatic habitats (<i>e.g.</i> , lakes, ponds, rivers).

Table 5 (20-222)

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Woodland Raptor Nesting Habitat Rationale: Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper’s Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. Interior habitat determined with a 200m buffer - Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. - In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> - OMNRF Districts. - Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. - Check data from Bird Studies Canada. - Reports and other information available from Conservation Authorities.	Studies confirm: - Presence of 1 or more active nests from species list is considered significant. - Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). - Barred Owl – A 200m radius around the nest is the SWH. - Broad-winged Hawk and Coopers Hawk– A 100m radius around the nest is the SWH. - Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. - Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial. (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. - SWHMiST Index #27 provides development effects and mitigation measures.	Study area does not provide the combination of candidate habitat features required to be considered significant.
Turtle Nesting Areas Rationale: These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle <u>Special Concern Species</u> Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	- Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. - For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. - Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> - Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). - Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. - Natural Heritage Information Center (NHIC) - Field Naturalist clubs	Studies confirm: - Presence of 5 or more nesting Midland Painted Turtles. - One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. - The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH. - Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. - Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. - SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	No listed ELC ecosites present that contain or are within 100m of exposed mineral soil. Area of graded fill in eastern region of property is close to Salem Road and portions were graded/compacted (not considered ideal habitat).

Table 5 (20-222)

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Seeps and Springs Rationale: Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. - Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species. <u>Information Sources</u> - Topographical Map - Thermography - Hydrological surveys conducted by Conservation Authorities and MOE. - Field Naturalists clubs and landowners. - Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: - Presence of a site with 2 or more seeps/springs should be considered SWH. - The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. - SWHMiST Index #30 provides development effects and mitigation measures.	Areas of potential seeps/springs not observed on the property. Listed species not observed.
Amphibian Breeding Habitat (Woodland). Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	- Presence of a wetland, pond or woodland pool (including vernal pools) >500m² (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. - Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. <u>Information Sources</u> - Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records. - Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. - OMNRF District - OMNRF wetland evaluations - Field Naturalist clubs - Canadian Wildlife Service - Amphibian Road Call Survey - Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm; - Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. - A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. - The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. - SWHMiST Index #14 provides development effects and mitigation measures.	Candidate habitat criteria met, but evening calling amphibian surveys only detected one of the listed calling species on the property (spring peeper) during a single survey. Newts/salamanders not observed. Confirmatory criteria not met.

Table 5 (20-222)

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Breeding Habitat (Wetlands) Rationale: Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (<i>e.g.</i> Bull Frog) may be adjacent to woodlands.	- Wetlands>500m² (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. - Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. - Bullfrogs require permanent water bodies with abundant emergent vegetation. <u>Information Sources</u> - Ontario Herpetofaunal Summary Atlas (or other similar atlases) - Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. - OMNRF Districts and wetland evaluations - Reports and other information available from Conservation Authorities	Studies confirm: - Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. or; Wetland with confirmed breeding Bullfrogs are significant. - The ELC ecosite wetland area and the shoreline are the SWH. - A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. - If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. - SWHMiST Index #15 provides development effects and mitigation measures.	Candidate habitat criteria met, but evening calling amphibian surveys only detected one of the listed calling species on the property (American toad) during a single survey. Newts/salamanders not observed. Confirmatory criteria not met.
Woodland Area-Sensitive Bird Breeding Habitat Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Special Concern: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. - Interior forest habitat is at least 200 m from forest edge habitat. <u>Information Sources</u> - Local bird clubs. - Canadian Wildlife Service (CWS) for the location of forest bird monitoring. - Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. - Reports and other information available from Conservation Authorities.	Studies confirm: - Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. - Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. - Conduct field investigations in spring and early summer when birds are singing and defending their territories. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #34 provides development effects and mitigation measures.	Forested ELC ecosites present on the property not of sufficient size or maturity and with insufficient forest interior habitat. Two of the listed species were detected during dawn bird surveys; however, no evidence of probable or confirmed breeding and the three species threshold not met.

Table 5 (20-222)

1.3 Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Marsh Breeding Bird Habitat Rationale: Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan Special Concern: Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	- Nesting occurs in wetlands. - All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. - For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. <u>Information Sources</u> - OMNRF District and wetland evaluations. - Field Naturalist clubs - Natural Heritage Information Center (NHIC) Records. - Reports and other information available from Conservation Authorities. - Ontario Breeding Bird Atlas	Studies confirm: - Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; or breeding by any combination of 5 or more of the listed species. - Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. - Area of the ELC ecosite is the SWH. - Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #35 provides development effects and mitigation measures.	MAM ELC ecosite present in study area but listed species not observed.
Open Country Bird Breeding Habitat Sources Defining Criteria Rationale: This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Special Concern Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. - Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). - Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. - The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. <u>Information Sources</u> - Agricultural land classification maps, Ministry of Agriculture. - Local bird clubs. - Ontario Breeding Bird Atlas - Reports and other information available from Conservation Authorities.	Field Studies confirm: - Presence of nesting or breeding of 2 or more of the listed species. - A field with 1 or more breeding Short-eared Owls is to be considered SWH. - The area of SWH is the contiguous ELC ecosite field areas. - Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #32 provides development effects and mitigation measures.	ELC ecosites listed are not present in the study area. The property would not be expected to provide the habitat function.
Shrub/Early Successional Bird Breeding Habitat Rationale: This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Special Concern: Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	Large field areas succeeding to shrub and thicket habitats>10ha in size. - Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (<i>i.e.</i> no row-cropping, haying or live-stock pasturing in the last 5 years). - Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. - Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. <u>Information Sources</u> - Agricultural land classification maps, Ministry of Agriculture. - Local bird clubs - Ontario Breeding Bird Atlas - Reports and other information available from Conservation Authorities.	Field Studies confirm: - Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. - A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. - The area of the SWH is the contiguous ELC ecosite field/thicket area. - Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #33 provides development effects and mitigation measures.	ELC ecosites listed are not present in the study area. No indicator species listed were detected and only one of the common species was detected. The property would not be expected to provide the habitat function based on criteria not being met.

Table 5 (20-222)

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Terrestrial Crayfish Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; <i>(Fallicambarus fodiens)</i> Devil Crayfish or Meadow Crayfish; <i>(Cambarus Diogenes)</i>	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. - Constructs burrows in marshes, mudflats, meadows, the ground can’t be too moist. Can often be found far from water. - Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <u>Information Sources</u> - Information sources from “Conservation Status of Freshwater Crayfishes” by Dr. Premek Hamr for the WWF and CNF March 1998.	Studies Confirm: - Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. - Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. - Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult. - SWHMiST Index #36 provides development effects and mitigation measures.	ELC ecosites listed are present on the property but terrestrial crayfish or chimneys were not observed.
Special Concern and Rare Wildlife Species Rationale: These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites <u>Information Sources</u> - Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. - NHIC Website “Get Information” : http://nhic.mnr.gov.on.ca - Ontario Breeding Bird Atlas - Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: - Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. - The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species <i>e.g.</i> specific nesting habitat or foraging habitat. - SWHMiST Index #37 provides development effects and mitigation measures.	No Special Concern (SC) species were detected on or adjacent to the property..

Table 5 (20-222)

1.4 Animal Movement Corridors

Wildlife Habitat	Wildlife Species	Candidate SHW		Confirmed SWH	Assessment
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Movement Corridors Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	Movement corridors between breeding habitat and summer habitat. - Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat –Wetland) <u>Information Sources</u> - MNRF District Office - Natural Heritage Information Center (NHIC) - Reports and other information available from Conservation Authorities. - Field Naturalist Clubs	- Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. - Corridors should consist of native vegetation, with several layers of vegetation. - Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. - Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. - Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat. - SWHMiST Index #40 provides development effects and mitigation measures.	Confirmed amphibian breeding habitat not detected in the study area.
Deer Movement Corridors Rationale: Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH from Table 1.1 of this schedule. - A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion. - Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). <u>Information Sources</u> - MNRF District Office - Natural Heritage Information Center (NHIC). - Reports and other information available from Conservation Authorities. - Field Naturalist Clubs	- Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. - Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. - Corridors should be at least 200m wide with gaps <20m and if following riparian area with at least 15m of vegetation on both sides of waterway. - Shorter corridors are more significant than longer corridors. - SWHMiST Index #39 provides development effects and mitigation measures.	No deer wintering habitat present.

1.5 Exceptions for EcoRegion 6E

EcoDistrict	Wildlife Habitat and Species	Candidate			Confirmed SWH	Assessment
		Ecosites	Habitat Description	Habitat Criteria and Information	Defining Criteria	
6E-14 <u>Rationale:</u> The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bears.	Mast Producing Areas Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	- Black bears require forested habitat that provides cover, winter hibernation sites, and mast-producing tree species. - Forested habitats need to be large enough to provide cover and protection for black bears.	Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech). <u>Information Sources</u> Important forest habitat for black bears may be identified by OMNRF.	All woodlands > 30ha with a 50%composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 SWHMiST Index #3 provides development effects and mitigation measures.	Not on Bruce Peninsula.
6E- 17 <u>Rationale:</u> Sharp-tailed grouse only occur on Manitoulin Island in Eco-region 6E, Leks are an important habitat to maintain their population	Lek Sharp-tailed Grouse	CUM CUS CUT	- The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. - Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated.	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland. - Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) - Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting <u>Information Sources</u> - OMNRF district office - Bird watching clubs - Local landowners - Ontario Breeding Bird Atlas	Studies confirming lek habitat are to be completed from late March to June. - Any site confirmed with sharp-tailed grouse courtship activities is considered significant - The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat - SWHMiST Index #32 provides development effects and mitigation measures	Not on Manitoulin Island.

3.6 Aquatic Environs

Given the location of the Bear Creek Tributary which is far-removed from the proposed Consent/Minor Variance severance (**West Parcel**) and the proposed townhome development in the MEMM3/graded fill area of the **East Parcel**, no fish habitat or fish biomass surveys were undertaken, nor warranted (**Photographs 47 and 48**). Digital sources will be reviewed again as part of the planning submission EIS. The designated Natural Linkage feature (50m from centre line of creek) in the Salem Secondary Plan (SSP) remains intact and unaffected by either land use change as an inclusion within the overall wetland mosaic.

4 RESOURCE SIGNIFICANCE

4.1 West Parcel (Part A)

Extensive ecological field inventories (flora and fauna) were conducted at various times during 2020, 2021 and 2022 over the entire property, including the **West Parcel (Part A)**. Additional relevant data, descriptions and figures were extracted from the City of Barrie Annexed Lands Natural Heritage System Report (Natural Resource Solutions Inc. 2012). From the field inventories and these other sources, an assessment of the resource significance of vegetation communities was possible. In this regard, it is our professional opinion and supported by the data and schedules of the **SSP** that none of the vegetation communities in the West Parcel (Part A) are considered rare or significant on either a Federal, Provincial, County or City level. As shown on Figure 3 and Figure 4 in the 500 Salem Road Planning Justification Report (Innovative Planning Solutions 2022a), the as-built portion, as well as the wetland features do not lie within the EPA designation or the Natural Heritage System designation in the City of Barrie Official Plan (City of Barrie 2018). The entire as-built portion, old field habitat (MEMM3/MEMM4), and the wetland features (SWTM3-6 and MAMM1-12) are designated Residential. The City of Barrie Council Adopted Version of the Official Plan (City of Barrie 2022) does not show on either Map 2 – Land Use Designations or Map 3 – Natural Heritage Protection Overlays any EPA designation, Natural Heritage System (NHS) designation or Natural Linkage designation on this portion of the property.

It is recognized that there are wetland features (“Other Wetland”) on this portion of the property, whose boundaries have been staked in-situ on September 24, 2021 with NVCA staff. The OLS survey was reviewed and approved NVCA staff.

None of the amphibian species or bird species found on-site are listed as Endangered or Threatened in the **ESA, 2007**. No Species at Risk (SAR) as listed on **Table 4** were observed or have been reported in this portion of the property. The evaluation of Significant Wildlife Habitat (**Table 5**) did not identify any Candidate SWH features or ecological functions on this portion of the property.

4.2 East Parcel (Part B)

Extensive ecological field inventories (flora and fauna) were conducted at various times during 2020, 2021 and 2022 over the entire property, including the **East Parcel (Part B)**. Additional relevant data, descriptions and figures were extracted from the City of Barrie Annexed Lands Natural Heritage System Report (Natural Resource Solutions Inc. 2012). From the field inventories and these other sources, an assessment of the resource significance of vegetation communities was possible. In this regard, it is our professional opinion and supported by the data and schedules of the **SSP** that the vegetation community MEMM3/graded fill vegetation community in the proposed ZBA & Draft Plan of Subdivision portion of the East Parcel (Part B) is considered rare or significant on either a Federal, Provincial, County or City level. As shown on Figure 3 and Figure 4 in the 500 Salem Road Planning Justification Report (Innovative Planning Solutions 2022a), this part of the property does not lie within the EPA designation or the Natural Heritage System designation in the City of Barrie Official Plan (City of Barrie 2018). The entire portions of MEMM3/graded fill, WODM3-2 and the edge of FOMM7-2 are designated Residential. The City of Barrie Council Adopted Version of the Official Plan (City of Barrie 2022) does not show on either Map 2 – Land

Use Designations or Map 3 – Natural Heritage Protection Overlays any EPA designation, Natural Heritage System (NHS) designation or Natural Linkage designation on the proposed ZBA & Draft Plan of Subdivision portion of the property. The wetland boundary adjacent (to the west) of the proposed East Parcel development area was staked in-situ with NVCA staff on September 15, 2020 and surveyed by an OLS. The OLS survey was review and approved by NVCA staff. The wetland feature to the west of proposed development area in the East Parcel (Part B) are adequately buffered in terms of their form (attributes) and ecological functions.

None of the amphibian species or bird species found on-site are listed as Endangered or Threatened in the **ESA, 2007**. No Species at Risk (SAR) as listed on **Table 4** were observed or have been reported in the proposed development portion of the **East Parcel (Part B)**. The evaluation of Significant Wildlife Habitat (**Table 5**) did not identify any Candidate SWH features or ecological functions in the proposed development portion of the **East Parcel (Part B)**.

5 PROPOSED DEVELOPMENT, IMPACTS AND MITIGATION MEASURES

5.1 West Parcel (Part A)

As stated previously, the Owner intends to sever the as-built portion of the property which lies at the west edge of the property, through Consent to Sever and Minor Variance Applications (Innovative Planning Solutions 2022a). The **West Parcel (Part A)** refers to that portion of the property which abuts the western edge of the TCPL over to the property's western boundary, as shown on **Figure 4**.

As determined through the review of the Application for Conformity Review (Innovative Planning Solutions 2021) and the Natural Heritage Features Conformity Review (CEA 2022) by the City and NVCA, it is requested that all of the wetland features on the West Parcel (Part A) as part of the severance be dedicated to the City.

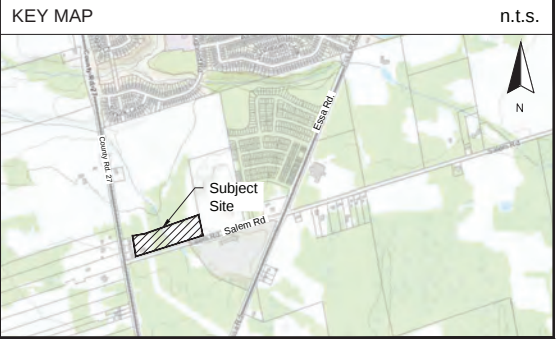
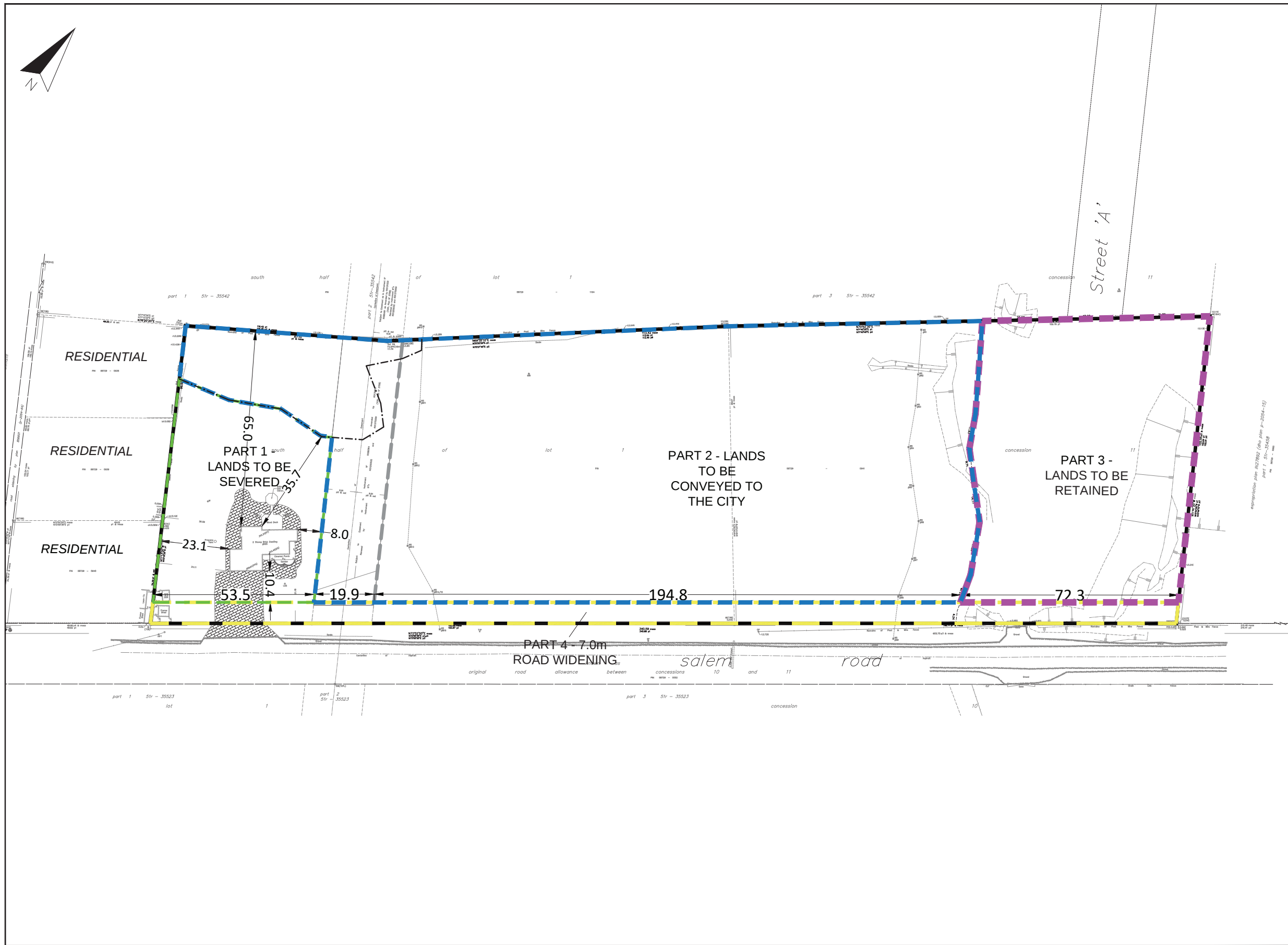
In this regard, the wetland features (SWTM3-6, MAMM1-12) at the back of the as-built portion and old field habitat (MEMM3/MEMM4) were staked in-situ with NVCA staff on September 24, 2021 and surveyed by an OLS. The resultant boundaries of the wetland features were provided to and approved by NVCA staff. **Figure 4** shows the extent of the wetland features boundary at the back of the as-built lot. **Figure 5** and **Figure 6** show that the as-built lot covers approximately 0.48 ha (1.18 ha) of which 0.13 ha (0.32 ac) will be dedicated as Environmental Lands to the City of Barrie as part of the Consent to Sever and Minor Variance Applications approval process.

It is our professional opinion that the proposed severance is strictly technical in nature and that there will be no potential impacts to the wetland features (attributes) or their ecological functions in the **West Parcel (Part A)**. As the wetland features will be dedicated to the City of Barrie, and no changes at present are proposed within the retained as-built portion, no potential impacts were identified or anticipated, and therefore no mitigation measures are proposed or warranted.

5.2 East Parcel (Part B)

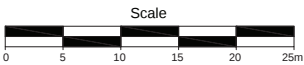
As with the **West Parcel (Part A)** wetland features dedication of 0.13 ha to the City of Barrie, the wetland features contained in the overall wetland mosaic (Environmental Lands) in the **East Parcel (Part B)** will be dedicated to the City as well. The total area to be dedicated is 1.76 ha (4.35 ac), as shown on **Figure 5**.

Figure 5 and **Figure 6** shows details of the proposed Draft Plan of Subdivision. The plan was formulated based partially on input from the natural heritage features assessment undertaken by CEA and Azimuth. The main findings of the vegetation community - ELCs, floristics, wildlife and wildlife habitat and SAR flora and fauna investigations determined that the far east portion comprised of ELCs MEMM3/graded fill, WOMM3-2 and part of FOMM7-2 (totaling 0.68 ha or 1.68 ac, exclusive of the road widening of Salem Road) can support the proposed townhome development. The development can be implemented in a manner that will not adversely affect or negatively impact the central wetland mosaic, which comprises the majority of property. It is our professional opinion that the proposed 20 vegetated buffer along the west edge of the proposed development area (0.68 ha) will adequately protect the wetland mosaic features (attributes) and their ecological functions. The proposed wetland buffer of 20 m is in keeping with the proposed 143 townhomes and naturally vegetated wetland buffer on the lands to the north.



SEVERANCE SKETCH

PART OF SOUTH HALF OF LOT 1, CONCESSION 11,
GEOGRAPHIC TOWNSHIP OF INNISFIL,
TOWN OF INNISFIL,
COUNTY OF SIMCOE



LEGEND

- Subject Site 3.32ha
- Lands to be Severed - Part 1:
 - Lot Area: 0.34ha
 - Lot Frontage: 53.5m
- Lands to be Conveyed to the City - Part 2:
 - Lot Area (Pipeline): 0.17ha
 - Lot Frontage (Pipeline): 19.9m
 - Lot Area (Environmental): 1.89ha
 - Lot Frontage (Environmental): 194.8m
- Lands to be Retained - Part 3:
 - Lot Area: 0.68ha
 - Lot Frontage: 72.3m
- 7.0m Road Widening - Part 4:
 - Area: 0.24ha

AGRICULTURAL GENERAL (AG) ZONE

Provisions	Required	Part 1 - Lands to be Severed
Principal Use	Agriculture	Agriculture
Min. Lot Frontage	150.0m	53.5m
Min. Lot Area	40.0ha	0.34ha

Figure 4. Severance Sketch

Source: The Corporation of the Town of Innisfil Zoning By-Law No. 054-04
Note: Information shown is approximate and subject to change.

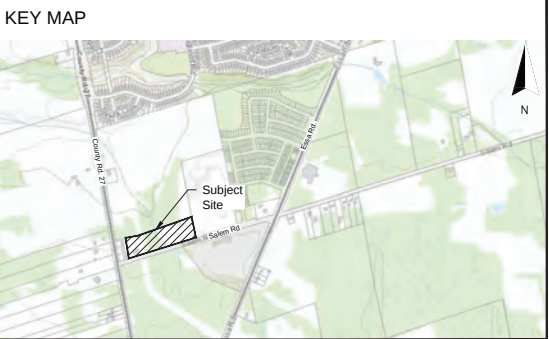
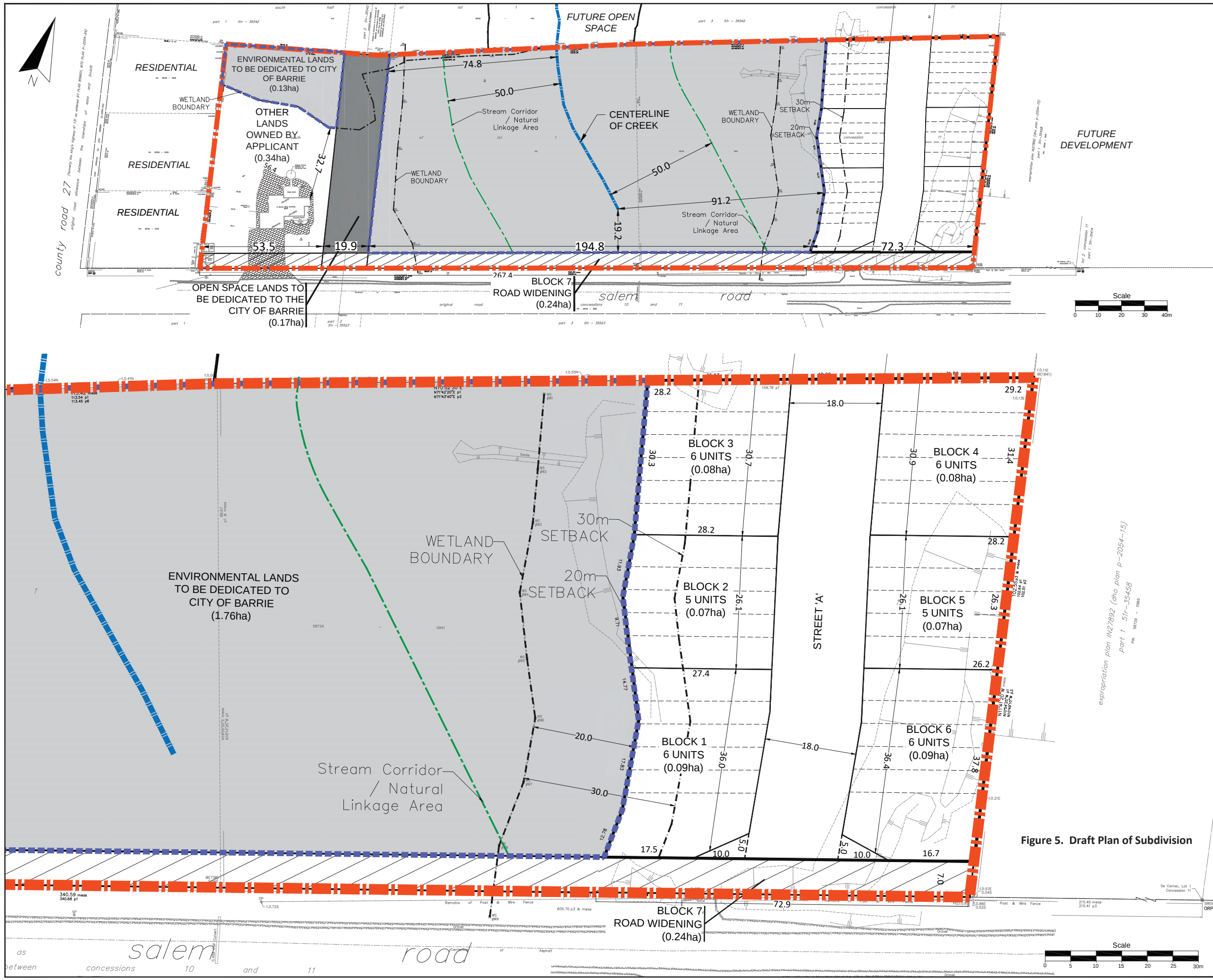
SEVERANCE SKETCH

500 SALEM RD, BARRIE

SCHEDULE OF REVISIONS			
No.	Date	Description	By

INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date:	July 18, 2022	Drawn By:	A.S.
File:	20-992	Checked:	T.K.



DRAFT PLAN OF SUBDIVISION

PART OF SOUTH HALF OF LOT 1, CONCESSION 11,
GEOGRAPHIC TOWNSHIP OF INNISFIL,
TOWN OF INNISFIL,
COUNTY OF SIMCOE

- LEGEND**
- SUBJECT LANDS
 - AREA: 3.32ha
 - FRONTAGE: 340.5m (incl. develop. limit)
 - DEVELOPMENT LIMIT (AREA:0.68ha excluding road widening)
 - WETLAND BOUNDARY
 - WETLAND SETBACK
 - STREAM CORRIDOR / NATURAL LINKAGE AREA
 - ENVIRONMENTAL LANDS TO BE DEDICATED TO THE CITY OF BARRIE
 - OPEN SPACE LANDS TO BE DEDICATED TO THE CITY OF BARRIE

OWNER'S CERTIFICATE
I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE: _____ OWNER'S NAME: _____

SURVEYOR'S CERTIFICATE
I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: _____ NEIL A. LEGROW, O.L.S.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

- | | |
|------------------|-----------------------------|
| a) SHOWN ON PLAN | g) SHOWN ON PLAN |
| b) SHOWN ON PLAN | h) MUNICIPAL WATER |
| c) SEE KEY PLAN | i) SAND, SILT, CLAY |
| d) RESIDENTIAL | j) SHOWN ON PLAN |
| e) SHOWN ON PLAN | k) MUNICIPAL WATER & SEWAGE |
| f) SHOWN ON PLAN | l) NONE |

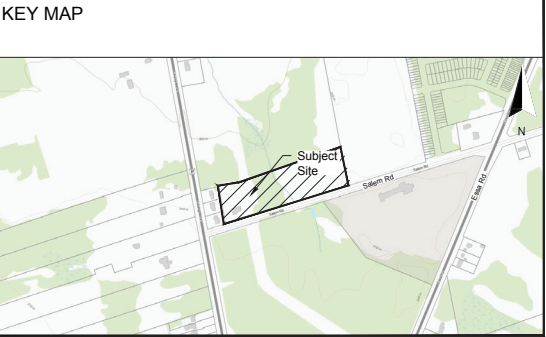
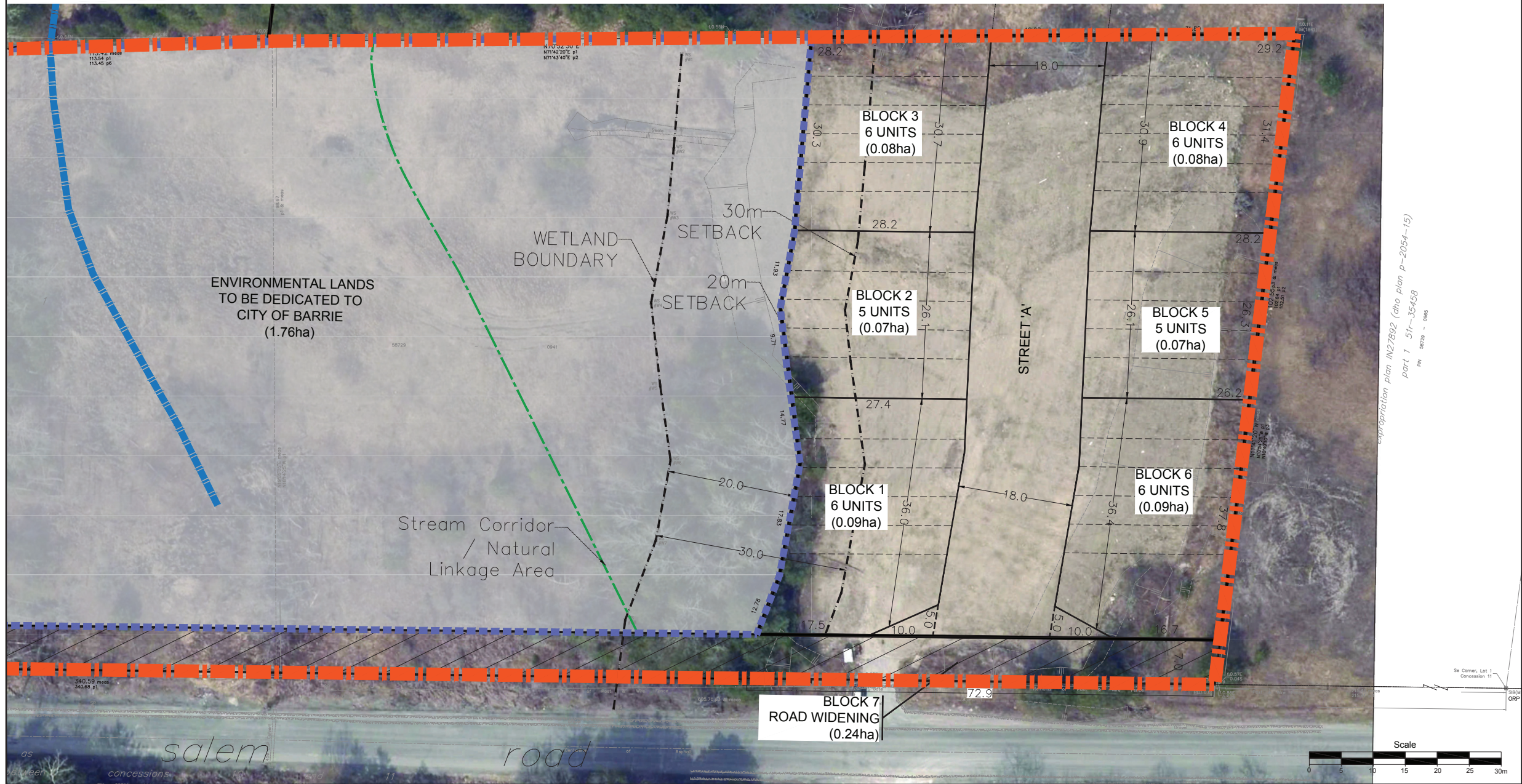
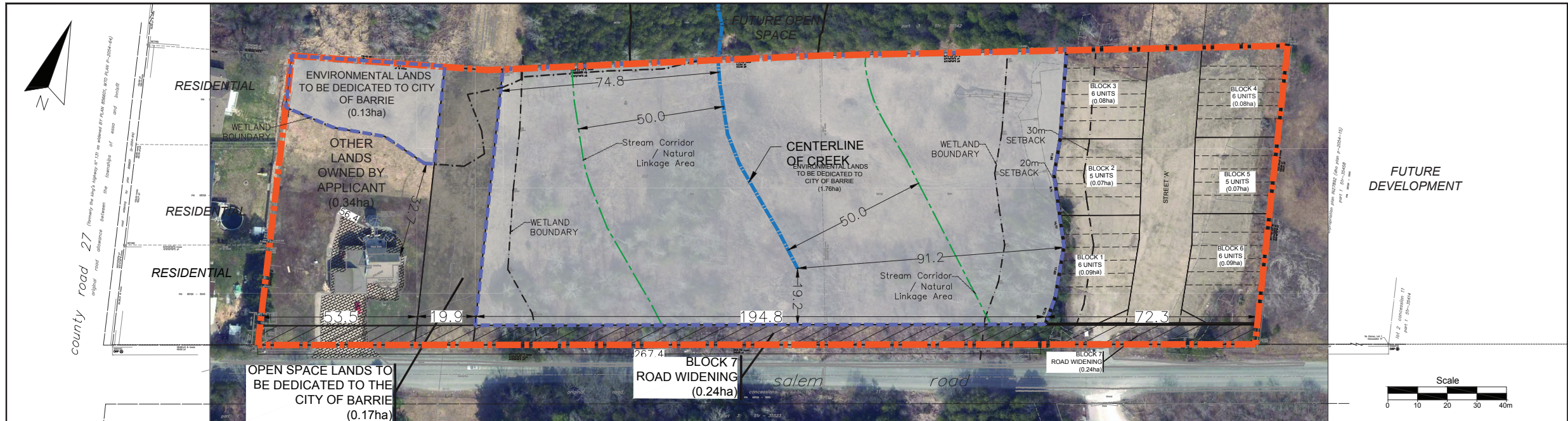
LAND USE STATISTICS			
LAND USE	LOT / BLK No.	UNITS	AREA (ha)
Residential - Townhouse	1 - 6	34	0.48
Street 'A'			0.20
TOTAL	7	34	0.68ha

Figure 5. Draft Plan of Subdivision



INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date:	Sept. 9, 2022	Drawn By:	A.S.
File:	20-992	Checked:	T.K.



DRAFT PLAN OF SUBDIVISION

PART OF SOUTH HALF OF LOT 1, CONCESSION 11,
GEOGRAPHIC TOWNSHIP OF INNISFIL,
TOWN OF INNISFIL,
COUNTY OF SIMCOE

- LEGEND**
- SUBJECT LANDS
 - AREA: 3.32ha
 - FRONTAGE: 340.5m (incl. develop. limit)
 - DEVELOPMENT LIMIT (AREA: 0.68ha excluding road widening)
 - WETLAND BOUNDARY
 - WETLAND SETBACK
 - STREAM CORRIDOR / NATURAL LINKAGE AREA
 - ENVIRONMENTAL LANDS TO BE DEDICATED TO THE CITY OF BARRIE
 - OPEN SPACE LANDS TO BE DEDICATED TO THE CITY OF BARRIE

OWNER'S CERTIFICATE
I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE OWNER'S NAME:

SURVEYOR'S CERTIFICATE
I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE CORRECTLY SHOWN.

DATE NEIL A. LEGROW, O.L.S.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

- | | |
|------------------|-----------------------------|
| a) SHOWN ON PLAN | g) SHOWN ON PLAN |
| b) SHOWN ON PLAN | h) MUNICIPAL WATER |
| c) SEE KEY PLAN | i) SAND, SILT, CLAY |
| d) RESIDENTIAL | j) SHOWN ON PLAN |
| e) SHOWN ON PLAN | k) MUNICIPAL WATER & SEWAGE |
| f) SHOWN ON PLAN | l) NONE |

LAND USE STATISTICS				
LAND USE	LOT / BLK No.	UNITS	AREA (ha)	
Residential - Townhouse	1 - 6	34	0.48	
Street 'A'			0.20	
TOTAL	7	34	0.68ha	

Figure 6. Draft Plan of Subdivision Overlay on FBS Spring 2021 Aerial



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File:	20-992	Checked:	T.K.

which were approved through an October 2020 Draft Plan of Subdivision, formerly owned by DiPoce (Innisfil) Inc. In fact, there is only a very narrow to no wetland buffer at the back of the townhome blocks. The townhomes abut 'Other Wetland' features along the west side of Street 'B' (Fairbanks Crescent), and are now part of the Condor Properties property to the north (MHBC 2020).

Figure 5 and **Figure 6** also show the SSP Natural Linkage designation (50m from centre line of creek) is far removed from and does not impinge on the proposed 17 townhomes on the west side of Street 'A'. The figure also shows the proposed 20m vegetated wetland buffer (setback), as well as the NVCA guideline wetland buffer of 30m.

It is our professional opinion and supported by the extensive and detailed natural heritage features field work and inventories that a 20m vegetated wetland buffer is appropriate and more than adequate based on the site conditions and drainage. The entire proposed eastern townhome blocks (Blocks 1-6) are essentially devoid of vegetation cover, being comprised almost entirely graded fill, along with sporadic groundcover comprised of dry-most mixed meadow (MEMM3).

It is our professional opinion, that the use of typical and standard Best Management Practices (BMPs) can be implemented to control erosion and sediment runoff during site preparation and grading. The following sediment and erosion controls (mitigation measures) have been extracted from the Functional Servicing & Stormwater Management Report (WMI & Associates Limited 2022). The entire stand-alone report should be consulted for additional details pertaining to pre-development drainage, subsurface conditions, post-development drainage, external drainage, internal drainage, stormwater quantity control, stormwater quality control, water balance controls, phosphorus retention initiatives, runoff volume controls, site grading, sanitary servicing, sediment and erosion controls, and all figures/drawings in Appendix A.

The sediment and erosion control measures read as follow:

Effective erosion and sediment control must be established prior to construction commencement and maintained until the site has been stabilized. Pro-active measures will be required to limit the amount of sediment travelling downstream. Where site grading is required, exposure of the soil during construction should be minimized to avoid erosion and sedimentation.

Silt Fence: Silt fence to be placed on the down slope of all excavated material to prevent sediment transport onto adjacent properties and municipal roadways. Periodic inspections and repairs to the silt fence should be performed regularly, as well as after every rainfall event.

Storm Sewer Inlets: Filter cloth complete with clear stone cover at storm sewer inlet structures (i.e. catchbasins) will ensure any construction related sediment laden overland runoff is treated before entering the municipal storm sewer system.

Mud Mat: Mud tracking from construction traffic to be controlled through the use of a construction site access mud-mat (consisting of large diameter rip-rap).

Vegetated Buffers: Existing treed and lawn areas along the development limits are to be maintained wherever possible. These areas provide a natural barrier to filter potentially sediment-laden overland flow.

Monitoring and Inspection: Erosion monitoring and sediment removal should be undertaken weekly and after every rainfall event. All damaged or clogged control devices to be repaired immediately.

5.3 TransCanada Pipeline (TCPL)

As with the Environmental Lands in the West Parcel (Part A) comprised of 0.13 ha of wetland features, the Environmental Lands in the East Parcel (Part B) comprised of 1.76 ha of wetland features and the proposed 20 m vegetated wetland buffer, the entire portion of the TCPL comprised of 0.17 ha (0.42 ac) will be dedicated as well to the City as Open Space lands (**Figure 5 and Figure 6**).

6 CONCLUDING REMARKS

6.1 West Parcel (Part A)

As stated previously, it is the intent of the Owner (LSR Salem Inc.) to sever the as-built portion of the West Parcel (Part A) through applications for a Consent to Sever and Minor Variance. As requested by the City and NVCA to determine the extent and area of the wetland features for the purposes of their dedication to the City, the back portion of this portion of the property was staked in-situ with NVCA staff. The wetland boundary stakes were subsequently surveyed by an OLS, and overlaid onto **Figure 4** (Severance Sketch), **Figure 5** (Draft Plan of Subdivision) and **Figure 6** (Draft Plan of Subdivision with an underlying FBS spring 2021 orthophoto). It was determined that the total area of the wetland features to be dedicated was 0.13 ha.

It is our professional opinion, supported by the reviewed and approved wetland features boundary staking exercise, that the dedication for the proposed severance has been addressed. The wetland features will remain intact and under public ownership, and allow for the continued protection and enhancement of the natural features (wetlands) in the long-term. Given the required land dedication, the City should therefore approve the Consent to Sever and Minor Variance applications.

6.2 East Parcel (Part B)

As stated previously, it is the intent of the Owner (LSR Salem Inc.) to build six blocks (Blocks 1-6) for a total of 34 townhouse units and Street 'A' in the far eastern portion of the property. The development also includes the road widening along the northern edge of Salem Road (Block 7, 0.24 ha).

As requested by the City and NVCA to determine the extent and area of the wetland features for the purposes of their dedication to the City, the eastern and western wetland boundary edges were staked in-situ with NVCA staff on September 15, 2020. The wetland boundary stakes were subsequently surveyed by an OLS, and overlaid onto **Figure 5** (Draft Plan of Subdivision) and **Figure 6** (Draft Plan of Subdivision with an underlying FBS spring 2021 orthophoto). It was determined that the total area of the wetland features (part of the EPA designation) to be dedicated was 1.76 ha.

It is our professional opinion, supported by the reviewed and approved wetland features boundary staking exercise, that the dedication wetland features in the EPA designation determined and the issue has been addressed. The entirety of the overall wetland mosaic will remain intact and under public ownership, and allow for the continued protection and enhancement of the natural features (wetlands) in the long-term. Given the land dedication, the City of Barrie should therefore approve the ZBA & Draft Plan of Subdivision applications, pending submission of a complete planning submission and a full and comprehensive review of same under the Planning Act and public plan review process. It is also our professional opinion and supported by the data collection and analysis, that the proposed townhome development area will protect the mosaic of wetland features to the west through the 20 m naturally vegetated wetland buffer and proposed BMPs, and therefore warrants approval of an Ontario Regulation 172/06 Permit from the NVCA.

Most of the technical reports as required in the Technical Meeting Required Reports (City of Barrie 2021b) have been prepared. However, there remain additional technical reports, as well as other plans and drawings during detailed design which need to be prepared.

In addition to the above concluding remarks pertaining to the East Parcel (Part B), we include the following additional remark. That given the recent approved policy changes as outlined in Bill 23, the implications for any ecological offsetting/compensation are unknown at this time.

6.3 TransCanada PipeLine (TCPL)

As requested as part of the proposed townhome development of the property, all of the TCPL easement (0.17 ha) and its inherent vegetation communities (WOD5-1, MEMM3/MEMM4, parts of MAMM1-12 and SWTM3-6 and MASM1-1) as shown on **Figure 3**, **Figure 5** and **Figure 6** will be dedicated to the City of Barrie.

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