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2358737 Ontario Inc.

**Environmental Impact Study
Glenelg Residential Subdivision
231 Glenelg Street, Dundalk Ontario**

**March 2020
SLR Project No.: 209.40385.00000**



ENVIRONMENTAL IMPACT STUDY
GLENELG RESIDENTIAL SUBDIVISION
231 GLENELG STREET, DUNDALK ON
SLR Project No.: 209.40385.00000

Prepared by
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for

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1.0 INTRODUCTION

SLR Consulting (Canada) Ltd. was retained by 2358737 Ontario Inc. to undertake an Environmental Impact Study (EIS) in support of an Official Plan Amendment, Zoning By-law Amendment and Draft Plan of Subdivision on lands legally described as Part of Lot 227 and 228 Range 2 West of Toronto and Sydenham Road Proton in the Community of Dundalk, Southlake Township in Grey County Ontario.

1.1 Study Area

The subject property is located at 231 Glenelg Street in the Community of Dundalk (Figure 1). The property is largely agricultural and includes a residence and amenity areas with adjacent land designations that include hazard lands, industrial and neighbourhood areas (Map 1, Township of Southgate Official Plan). The residential core of the community occurs to the east and south of the property with agriculture being the main land use to the north and west. The property also falls within the jurisdiction of two Conservation Authorities: Grand River Conservation Authority (GRCA) and Saugeen Valley Conservation Authority (SVCA).

1.2 Goals and Objectives

The goal of the EIS is to demonstrate that the proposed development complies with the requirements of the Township of Southgate and Grey County Official Plans, the GRCA and SVCA.

The objectives include the following:

- Document the natural features and functions of the site and adjacent lands and demonstrate that the proposed development will not create an unacceptable impact to the natural heritage features and areas identified within the Official Plans of the Township of Southgate and Grey County; and,
- Provide recommendations and mitigation measures to ensure the protection of adjacent natural features in the context of applicable legislation, including the Provincial Policy Statement (PPS, 2014), the City's Official Plan and Ontario Regulation 150/06 and 169/06 administered by the GRCA and SVCA respectively and associated policies.

2.0 PLANNING CONTEXT

Development on the site is subject to a number of federal, provincial and local environmental *Acts*, regulations and policies which provide direction and guidance regarding proposed changes in land use and the protection of natural heritage features and functions. The following instruments provide the applicable natural heritage regulatory framework that applies to the subject lands which include:

- Provincial Policy Statement (PPS, 2014);
- Grey County Official Plan;
- Township of Southgate Official Plan;
- Grand River Conservation Authority (GRCA) Ontario Regulation 150/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses;

- Saugeen Valley Conservation Authority (SVCA) Ontario Regulation 169/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses;
- Endangered Species Act (ESA, 2007); and,
- Migratory Birds Convention Act (MBCA, 1994).

Although the property straddles the jurisdictional boundary of two conservation authorities, GRCA will be the lead commenting and coordinating agency as agreed with SVCA.

3.0 METHODOLOGY

Existing conditions on the property were determined through a literature review and desktop analysis of secondary source material from the Ministry of Natural Resources and Forestry (MNRF) and the Natural Heritage Information Centre (NHIC) database combined with field investigations to assess and delineate the natural heritage features and functions within and adjacent to the study area. Additional information with respect to fisheries, wildlife and Species at Risk (SAR) were obtained through targeted surveys and field reconnaissance. This information was used to develop the description of the natural environment and to identify potential impacts related to proposed land use changes.

The following table (Table 1) provides a summary of site visits and field tasks completed. The wetland boundary was staked by SLR and GRCA on June 21, 2018.

Table 1. Summary of Field Investigations

Date	Task Description	Weather Conditions₁
April 22, 2016	Identification of key natural heritage features	
June 16, 2016	Vegetation investigation (ELC)	Sunny/Beaufort:1-2/Temp: 25°C
June 23, 2016	Breeding Bird Survey #1	Sunny/Beaufort:1-2/Temp: 14°C Time 05:30-10:00
April 13, 2017	Amphibian Breeding Survey #1	Partly cloudy/Beaufort:0/Temp: 5°C Time 21:00-22:00
May 21, 2017	Amphibian Breeding Survey #2	Light rain/Beaufort:0/Temp; 14°C Time 21:30-22:50
June 7, 2017	Breeding Bird Survey #2	Sunny/Beaufort:0/Temp: 18°C Time 05:30-10:00
June 19, 2017	Site Reconnaissance	Sunny/Beaufort:2/Temp: 22°C
June 26, 2017	Breeding Bird Survey #3	Sunny/beaufort:0/Temp: 14°C Time 05:30-10:00
November 14, 2017	Site visit to establish preliminary wetland boundary	Sunny/Beaufort:2/Temp: 5°C
April 26, 2018	Mark wetland boundary in advance of site visit with GRCA/SVCA, Headwater Drainage Feature (HDF) evaluation	Sunny, Beaufort 1-2, Air temperature 5°C at 10:00
May 25, 2018	Confirm field conditions, HDF evaluation	Sunny, Beaufort 1-2, Air temperature 25°C at 16:00

Date	Task Description	Weather Conditions ¹
June 21, 2018	Wetland boundary staking with GRCA/SVCA	Sunny/Beaufort:0/Temp: 25°C
July 24, 2018	HDF evaluation	Sunny, Beaufort 1, Air temperature 24°C at 15:00
September 7, 2018	Assess potential effects of SWM pond discharge	Sunny, Beaufort 1-2, Air temperature 22°C
¹ The Beaufort Wind Scale is a tool used to estimate wind conditions. [0] Air calm, smoke rises vertically [1] Light air movement, smoke drifts, [2] Wind felt on face, leaves rustle [3] Leaves and small twigs in continual motion, wind extends light flags [4] Wind raises dust, loose paper, moves small branches [5] Small trees begin to sway, white crested wavelets form on inland waters [6] Large branches in motion		

3.1 Hydrogeology

Hydrogeological investigations are currently in progress. The objectives of the study include characterization of the geological setting and to determine the relationship of the groundwater interactions and maintenance of surface water features. A draft report will be provided under a separate cover.

3.2 Aquatic Habitat Assessment

The Natural Heritage Information Centre (NHIC) and the Fisheries and Oceans Canada Distribution Maps for Fish and Mussel Species at Risk were consulted for occurrences of federally (COSEWIC) and provincially (COSSARO) designated aquatic Species at Risk and Provincially Rare Species (S1-S3) within the subject lands. GRCA was contacted to obtain fish and fish habitat information for headwater drainage feature on the subject property.

The objective of field investigations was to identify, map, and describe the existing aquatic habitat and evaluate the Headwater Drainage Features (HDF). Observations were made by walking the entire on-site length of the HDF. The on-site HDF was evaluated using the Rapid Method provided in the Evaluation, Classification and Management of Headwater Drainage Features Guideline (TRCA and CVC, 2014). This approach is appropriate for low sensitivity sites and documents the HDF form and flow conditions, riparian vegetation and site features that are important components of habitat.

3.3 Vegetation

Aerial photography, soils mapping, contour mapping and Land Information Ontario data were used to delineate vegetation communities according to principles of the Ecological Land Classification (ELC) for Southern Ontario: First Approximation and its Application (Lee et. al., 1998). Site investigations were undertaken in April, June and November to inventory plant species, refine the ecological classification, and obtain soil samples. The wetland boundary was staked by SLR and GRCA on June 21, 2018 and surveyed. The classification was completed to the most detailed level in the hierarchy to reflect the differences within the vegetation communities that relate to species composition, architecture and ecosystem function.

3.4 Wildlife and Wildlife Habitat

Evidence of wildlife presence was determined from direct sightings, and indirectly from such indicators as calls, nests, tracks, scat, browse and burrows during all field investigations.

To better refine habitat communities for wildlife surveys the property was divided into units following the ecological land classification. Wildlife activity roughly follows differences in vegetation height and structure, and proximity of water resources, therefore the units reflect these characteristics. Unit 1 is the swamp thicket. Unit 2 is the treed deciduous swamp surrounding the thicket to the southwest and north and the woodland in the south west corner of the property. Agricultural and residential lands that comprise the majority of the property were included in Unit 3.

3.4.1 Breeding Bird Surveys

Breeding bird surveys were undertaken within the recognized surveying window in Ontario for breeding birds (typically June and early July). Surveys followed standard methodologies and conditions established by the Ontario Breeding Bird Atlas (OBBA) (i.e. between 05:30 and 10:00, low winds, no precipitation and suitable temperatures). Breeding evidence was recorded for each wildlife unit and evaluated as possible, probably or confirmed (e.g. singing male, pair observed or adult carrying food) in accordance with the standard protocols. Given the land use, the transect method suggested by MNR for evaluating habitat use by Bobolink and Eastern Meadowlark was not utilized. Instead, wandering transects within each Unit 1 and 2 and peripheral edge of Unit 3 (where grassland/ meadow occurred) were utilized. This allowed for optional listening and viewing while leaving potential nesting areas undisturbed. Where SAR birds were observed information including sex, behaviour and interaction with other SAR and non-SAR birds were recorded.

3.4.2 Amphibian Surveys

Amphibian surveys were undertaken to review the potential of the hazard lands and associated wetland features on the property and adjacent lands to support breeding amphibians. Three surveys were completed in April, May and early June following Marsh Monitoring Program standards. Surveys followed the basic principles that include: undertaking at least 15 days between each survey beginning one half hour after sunset, ending by midnight on evenings with little wind and minimum night air temperatures (5°C, 10°C, and 17°C). Survey times were coordinated with several other ecologists throughout Southern Ontario via an email circulation used to assist surveyors in targeting the prime breeding window for early and late breeders targeting Western Chorus Frog (*Pseudacris triseriata*). As climate change has the potential to shift the incidence of calling amphibians, it is increasingly important to coordinate surveys based on weather conditions and seasonal trends. Calling evidence was recorded on a scale of L0-L3 and interpreted as follows:

- L0 – No calling;
- L1 – Individuals can be accurately counted, calls do not overlap;
- L2 – Some calls simultaneous, number of individuals can be estimated; and,
- L3 – Full chorus, calls overlap, individuals cannot be estimated.

3.5 Species of Conservation Concern

For the purpose of this EIS, species that are designated federally, provincially and which are of regional or local interest (e.g. rare to the watershed or municipality) are collectively identified as Species of Conservation Concern. Species protected under the *ESA, 2007* are also included in this category. A habitat based approach was applied to evaluate the potential for Species of Conservation Concern to occur within the property and adjacent lands in conjunction with the

desktop review and inquiry with the MNRF and NHIC database. The information obtained through this exercise was confirmed through site investigations and targeted surveys.

3.6 Significant Wildlife Habitat

The criteria provided in the MNRF Significant Wildlife Habitat Technical Guide (SWHTG) and updated Ecoregion Criterion Schedules 6E (MNRF, 2012) for significant wildlife habitat (SWH) were reviewed. Anthropogenic features do not qualify as SWH and therefore were not assessed. The potential for candidate SWH is limited given the context of the subject property (residential, agricultural lands)

4.0 EXISTING CONDITIONS

4.1 Geology, Hydrology and Soils

Dundalk Island, a topographic high in southern Ontario, is characterized by a drumlinized sandy silt till plain where peat-dominated wetlands occur in the areas between the drumlins (Chapman and Putnam, 1984). The property lies largely to the south of the drumlins, but fluting maintains the rolling aspect and mineral wetland occurs in the depression. The till is stone-poor, sandy silt to silty sand-textured till with glaciofluvial deposits underlying the wetlands (Surficial Geology of Southern Ontario, 2010). Soil samples reflect a “plough layer” created by agriculture over silty sands.

The property is crossed by the watershed divide between a tributary to the Grand River and the Saugeen River. The wetland on site is the headwater to both systems, shifting in response to the volume of rain that falls in the area. The Melancthon Wetland Complex #1 Provincially Significant Wetland occurs downstream to the southeast, while the Ventry or Riverview Locally Significant Wetlands occur in the Saugeen watershed to the southeast.

The groundwater table is high (0.8 to 1.5m below surface) (Sirati & Partners Consultants Ltd., 2017). The agricultural lands have been tile drained and discharge at the edge of the meadow marsh in the north-central part of the property.

4.2 Aquatic Environment

A constructed channelized drain was found within a meadow marsh deciduous swamp identified in the study area west of the proposed development (Figure 1). Flow conditions were observed early and late spring and mid-summer in conjunction with other visits such as wetland staking and vegetation surveys to record hydrological conditions during wet and dry seasons (Table 2).

Table 2: Channel Conditions through Meadow Marsh and Deciduous Swamp

Date of Observation	Observations	Representative Photos
April 26, 2018	<ul style="list-style-type: none"> • Water gently flowing to northwest through deciduous swamp • Standing water in meadow marsh (photo) 	
May 25, 2018	<ul style="list-style-type: none"> • Standing water in channel through swamp; no discernible flow 	
July 24, 2018	<ul style="list-style-type: none"> • Standing water only in deeper sections of channel extending through meadow marsh and swamp 	

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LEGEND

- Property Boundary
- Tile Drain Outlet
- Drain
- Staked Dripline (Schaeffer Dzaldov Bennett Ltd., Staked June 25, 2018)
- Wetland and Dripline Buffer (10m)
- Grasshopper Sparrow (CUM)(2017)
- CUM1-1 Put Into Agricultural Production in 2018

Ecological Land Classification

Red-osier Dogwood Mineral Swamp Thicket	SWT2-5
Reed-canary Grass Mineral Meadow Marsh	MAM2-2
Poplar Mineral Deciduous Swamp	SWD4-3
Fresh-Moist White Cedar Coniferous Forest	FOC4-1
Fresh-Moist Sugar Maple – lowland Ash Deciduous Forest	FOD6-1
Fresh Mineral Cultural Meadow	CUM1-1
Agricultural Lands	AGR
Residential Campus	RES



SCALE: 1:4,000
WHEN PLOTTED CORRECTLY AT 11 x 17
NAD 1983 UTM Zone 17N

NOTES

This map is for conceptual purposes only and should not be used for navigational purposes.

Basedata: Digiglobe, (Oct 22, 2014)

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EXISTING CONDITIONS

September 26, 2018	Rev 0.0	Figure No.
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

No GRCA or MNRFP fish collection records were found for the site. A review of fisheries distribution maps (Fisheries and Oceans Canada) and screening of provincial sources (MNRFP, SARO List, NHIC) did not identify fish and mussel Species at Risk in the study area. This is consistent with observations on the property.

According to the headwater drainage feature evaluation (TRCA and CVC 2014), the feature is considered to support important hydrologic function because it contains standing water in a wetland environment in mid-summer. Fish habitat is classified as contributing function limited to providing allochthonous transport to downstream habitat owing to intermittent flow.

4.3 Vegetation

The vegetation communities are mapped on a 2014 aerial photo. At the time of field studies in the spring and summer of 2017, the residential house fronting on to Glenelg Street was the remaining structure on site. The vegetation mapping reflects the conditions as of the summer of 2017.

The northeast side of the property is agricultural consisting of cultural meadow and active agriculture. The natural areas occur on the southwestern portion of the property consisting of wetlands and small patches of remnant forests near the residence to the west of the property. The vegetation communities that occur on the subject lands include:

1. Red-osier Dogwood Mineral Swamp Thicket (SWT2-5)
2. Reed-canary Grass Mineral Meadow Marsh (MAM2-2)
3. Poplar Mineral Deciduous Swamp (SWD4-3)
4. Fresh-Moist White Cedar Coniferous Forest (FOC4-1)
5. Fresh-Moist Sugar Maple – lowland Ash Deciduous Forest (FOD6-1)
6. Fresh Mineral Cultural Meadow (CUM1-1)
7. Agricultural Lands

Vegetation communities and their respective locations within the subject property are provided on Figure 1. An inventory of plants observed during field investigations was also completed and is provided in Appendix A.

The following describes the vegetation communities observed on the subject lands.

4.3.1 *Red-osier Dogwood Mineral Swamp Thicket (SWT2-5)*

The shrub dominated community occurs west of the agricultural lands on the southern half of the property and may have been cleared for farming in the past. In dry years this area could have been ploughed as evidenced by the presence of cool season forage grasses such as Timothy (*Phleum pratense*) and Kentucky Fescue (*Lolium arundinaceum*). If that is true, the attempt was abandoned in subsequent wet years and the area is now dominated by Red-osier Dogwood (*Cornus sericea*) in association with Pussy Willow (*Salix discolor*), Shining Willow (*Salix lucida*) and Bebb's Willow (*Salix bebbiana*). Balsam Poplar (*Populus balsamifera*) occurs occasionally. The understory includes Reed-canary Grass (*Phalaris arundinacea*), Fox Sedge (*Carex vulpinoidea*) and Fowl Bluegrass (*Poa palustris*).

Balsam Groundsel (*Packera paupercula*) was observed in an opening in the thicket found in moist areas including fens. The soil in this area is not marly nor is it peat as one could expect

from a condition of groundwater discharge. It represents a borderline condition where groundwater table rises and falls maintaining moist to wet conditions that are difficult to drain.

4.3.2 Reed-canary Grass Mineral Meadow Marsh (MAM2-2)

This community occurs in a narrow band adjacent to the channelized drain and expanding to the northwest corner of the property. The outlet of the tile drain is located in the extreme north end of this community. It is dominated by Reed-canary Grass with several species of sedge (*Carex retrosa*, *C. vulpinoidea*, *C. gracillima*, *C. lacustris*, *C. flava*), Broad-leaved Water Plantain (*Alisma subcordatum*) and Narrow-leaved Cattail (*Typha angustifolia*). Species that intermix include Purple-stemmed Aster (*Symphotrichum puniceus*) and Marsh Bedstraw (*Galium palustris*). Occasional trees and shrubs occur throughout.

Of note is the occurrence of Yellow Sedge (*Carex flava*) that similar to the Balsam Groundsel, is a species that may be indicative of near fen-like conditions.

4.3.3 Poplar Mineral Deciduous Swamp (SWD4-3) modified by Black Ash and Cedar

This treed unit occurs on the west side of the property, surrounding the thicket swamp and interspersed by the meadow marsh. Although dominated by Balsam Poplar, there are elements that include Black Ash (*Fraxinus nigra*) and Swamp Maple (*Acer xfreemanii*) that speaks to past disturbance. Eastern White Cedar (*Thuja occidentalis*) occurs sporadically, and White Spruce (*Picea glauca*) occupy slightly drier knolls. The shrub layer includes Red-osier Dogwood and Alderleaf Buckthorn (*Entropis alnifolia*), the latter being another element of these near-fen conditions. Ground flora includes Dwarf Raspberry (*Rubus pubescens*), Fowl Bluegrass and Broad-leaved Water-plantain.

4.3.4 Fresh-Moist White Cedar Coniferous Forest (FOC4-1)

This is a small unit at the interface of the deciduous forest and the thicket and treed deciduous swamp to the north. The canopy of this community is closed and dense eliminating light, and therefore the ground flora is absent. It is dominated by Eastern White Cedar with occasionally occurring Sugar Maple (*Acer saccharum*) and Trembling Aspen (*Populus tremuloides*).

4.3.5 Fresh-Moist Sugar Maple – Lowland Ash Deciduous Forest (FOD6-1)

Sugar Maple dominates the canopy with frequent occurrences of White Ash (*Fraxinus americana*) and Trembling Aspen. The understory is sparse and largely Chokecherry (*Prunus virginiana*). The ground flora is patchy and includes Graceful Sedge, Virginia Strawberry (*Fragaria virginiana*) and False Solomon's Seal (*Maianthemum racemosum*).

4.3.6 Fresh Mineral Cultural Meadow (CUM1-1)

Areas of pasture occurred within the former horse-ring and on the north eastern and south-central parts of the property near the former residence. These cultural meadows are populated with largely non-native species and reflect their use as grazing for farm animals and landscape features. Grass is the dominant vegetation and includes Timothy Grass (*Phleum pratense*), Smooth Brome (*Bromus inermis*), Orchard Grass (*Dactylis glomerata*), Kentucky Fescue (*Lolium arundinaceum*), Tall Buttercup (*Ranunculus repens*), Bird's-foot Trefoil (*Lotus corniculatus*) and Oxeye Daisy (*Leucanthemum vulgare*).

4.3.7 Agricultural Lands

The north east portion of the site consists of a field of rotating annual row crops such as wheat and soybean. In 2018 cultivation was expanded to include the cultural meadows by the tenant farmer.

4.3.8 Residential Campus

The two-storey dwelling, associated gardens, landscape plantings and mowed lawn remains occupied on Glenelg Street.

4.3.9 Floristics

All of the species documented on the property are common and secure in Ontario. Approximately 27% of the inventory is non-native (30% is average for southern Ontario) although this number approaches 90% if the cultural meadows are evaluated separately. The relatively low incidence of non-native species in the wetlands speaks to relatively stable conditions in spite of historical disturbance.

Of note is the small number of species (Balsam Groundsel, Yellow Sedge, Alderleaf Buckthorn) that indicate that the site tends toward a fen, although no strong fen indicators were observed. This is an effect of the rise and fall of the shallow groundwater table.

4.4 Wildlife

Formal surveys were undertaken for birds and amphibians during the time at one of their most vulnerable life cycle stages: breeding. It is at this time that they are anchored to breeding activity (nests, breeding ponds) that they migrate from when breeding is complete. These species inform the functions of landscape feature in terms of diversity, species richness and the importance of the underlying vegetation and water resources that support wildlife habitat. The wildlife units that were sampled, together with stations for amphibian calling counts are illustrated on Figure 3.

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LEGEND

- Property Boundary
- Amphibian Survey Stations (2017)
- Tile Drain Outlet
- Drain
- Staked Dripline (Schaeffer Dzaldov Bennett Ltd., Staked June 25, 2018)
- - - Wetland and Dripline Buffer (10m)
- Grasshopper Sparrow (CUM)(2017)
- Wildlife Units (Breeding Birds)(2017)
- CUM1-1 Put Into Agricultural Production in 2018

Ecological Land Classification

Red-osier Dogwood Mineral Swamp Thicket	SWT2-5
Reed-canary Grass Mineral Meadow Marsh	MAM2-2
Poplar Mineral Deciduous Swamp	SWD4-3
Fresh-Moist White Cedar Coniferous Forest	FOC4-1
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Fresh Mineral Cultural Meadow	CUM1-1
Agricultural Lands	AGR
Residential Campus	RES



SCALE: 1:4,000
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NAD 1983 UTM Zone 17N

NOTES

This map is for conceptual purposes only and should not be used for navigational purposes.

Basedata: Digiglobe, (Oct 22, 2014)

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WILDLIFE SURVEY LOCATIONS

September 26, 2018	Rev 0.0	Figure No.
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4.4.1 Breeding Birds (General)

The breeding bird survey in the spring of 2016 and 2017 documented 42 species (Appendix B) on the subject property. Of these, evidence of breeding on the property was recorded for 33 species. The remaining were species with wide ranges that were observed flying over for which there is no breeding habitat (e.g., Herring Gull), or that were not in appropriate habitat (e.g., Northern Harrier).

They represent distinct groupings associated with the available habitat.

The majority of the species recorded are urban tolerant and typical of cultural and agricultural landscapes (e.g. American Goldfinch, American Robin). These species are tolerant to disturbances within the landscape and able to adapt to changing environments.

Woodland species such as Hairy Woodpecker, Pileated Woodpecker, Northern Flicker and Red-eyed Vireo were documented in the woodland. It speaks to the small size of the woodland that no other wood warblers were observed.

Species such as Savannah Sparrow, Grasshopper Sparrow and Bobolink and Eastern Meadowlark are characteristic of open grasslands and were associated with the cultural meadows on and surrounding the subject property.

Field Sparrow, despite its name, favours edges and thickets, together with Indigo Bunting, Gray Catbird and Song Sparrow, both at upland and wetland sites. The cross-over to wetland conditions is indicated by the presence of Alder Flycatcher, Yellow Warbler and Common Yellowthroat.

4.4.2 Amphibian Breeding Habitat

Amphibian breeding habitat is limited to the western portion of the property consistent with the wetlands. Four locations were surveyed at the edges of the thicket swamp and treed swamp, and also at the meadow marsh south of Glenelg (Figure 2).

- 1A: Pond inside horse-ring;
- 1B: Glenelg Street at southeast wetland;
- 2: Glenelg Street at woodland;
- 3: Glenelg Street at treed swamp;
- 4A: Ida Street in northwest corner; and,
- 4B at interface with cultivated lands.

Results for points 4A and 4B were combined as the calling was evenly distributed throughout the north end of the wetland.

The woodland adjacent to the house to the west of the property had been mapped in Land Information Ontario as a cartographic wetland. No amphibians were calling on either survey and the vegetation is all upland therefore the area has been classified as a forest.

Surveys at a small pond inside the historical horse-ring were negative: no frogs or turtles were recorded.

The lack of permanent standing water is evident in that no Green Frogs (*Lithobates clamitans*) were recorded. Breeding habitat appears to be limited to species that require ephemeral wetlands.

The most concentrated populations are associated with the treed deciduous swamp that extends south to Glenelg to the west of the property, and in the northern meadow marsh. The occurrence of Western Chorus Frog was limited to this corner at Ida Street. Spring Peepers were heard incidentally during the day in a pool in approximately the middle of the property (see photographs), but no Western Chorus Frogs were calling. As this species can be censused during the day due to its inclination to call in greater numbers diurnally, it is with confidence that we locate the important breeding site for Western Chorus Frogs in the northwest.

Table 3: Amphibian Survey Results

Survey Dates	Station	Common Name	Scientific Name	Calling Level	Count
April 13, 2017 Weather: Partly cloudy Beaufort:0 Temp: 5°C Time 21:00-22:00	1B	Spring Peeper Wood Frog	<i>Pseudacris crucifer</i> <i>Lithobates sylvaticus</i>	L2 L1	9 5
	2	No calling; no water. This area had been mapped in background documents in error as wetland.			
	3	Spring Peeper Wood Frog	<i>Pseudacris crucifer</i> <i>Lithobates sylvaticus</i>	L3 L2	chorus 10
	4A and 4B	Spring Peeper Wood Frog Western Chorus Frog Northern Leopard Frog	<i>Pseudacris crucifer</i> <i>Lithobates sylvaticus</i> <i>Pseudacris triseriata</i> <i>Lithobates pipiens</i>	L3 L3 L2 L1	chorus chorus 15 1
May 21, 2017 Weather: Light rain Beaufort:0 Temp; 14°C Time 21:30-22:50	1B	Spring Peeper Wood Frog	<i>Pseudacris crucifer</i> <i>Lithobates sylvaticus</i>	L3 L1	chorus 2
	2	No calling - Dry			
	3	Spring Peeper Gray Treefrog American Toad	<i>Pseudacris crucifer</i> <i>Hyla versicolor</i> <i>Anaxyrus americanus</i>	L2 L3 L1	5 chorus 1
	4A and 4B	Spring Peeper Wood Frog Western Chorus Frog Northern Leopard Frog	<i>Pseudacris crucifer</i> <i>Lithobates sylvaticus</i> <i>Pseudacris triseriata</i> <i>Lithobates pipiens</i>	L2 L2 L2 L1	15 7 7 5

4.4.3 Miscellaneous Wildlife

4.4.3.1 Mammals

Evidence of White-tailed Deer (*Odocoileus virginianus*) (tracks, browse) was observed at many places on the subject property. A doe and fawn were observed on 23 June 2016 in the deciduous swamp.

Other mammal sitings include Eastern Chipmunk (*Tamias striatus*), Northern Raccoon (*Procyon lotor*) and Red Fox (*Vulpes vulpes*). A dead Wild Boar (*Sus scrofa*) was observed in the northwest corner of the thicket swamp. This is likely an escape from production in the neighbourhood, but as this species has the potential to naturalize and become a serious pest, it was worthy of mention.

A dead Eastern Gartersnake (*Thamnophis sirtalis*) was observed on Glenelg Road, and reported by the former owners to occur on site.

Digger Crayfish (*Fallicambarus fodiens*) chimneys were noted along the wetland boundary extending up to 5 metres into the agricultural fields.

4.4.4 Species of Conservation Interest and Significant Wildlife Habitat

The background screening identified potential species that could occur on and adjacent to the subject lands. The list in Table 3 was scoped to include species for which suitable habitat is present and excluded those for which no habitat opportunities occur on site or are historical in nature (i.e. greater than 40 years). The scoped review below includes a summary of relevance to the proposed application.

Table 4. Species of Conservation Concern Screening

Common Name	Scientific Name	Designation ⁴	Habitat Affinities Present Within or Adjacent to site
<i>Mammals</i>			
¹ Tri- Coloured Bat	<i>Perimyotis subflavus</i>	Endangered ESA regulated	Marginal – Mature trees present
¹ Little Brown	<i>Myotis lucifugus</i>	Endangered ESA regulated	Yes – Suitable trees and structures present
¹ Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Endangered ESA regulated	Low / None – Lacks forested habitats, only some mature trees are present
¹ Eastern Small-footed Bat	<i>Myotis leibii</i>	Endangered ESA regulated	No – Typically found in areas where rock structure occurs (e.g. escarpment, alvars, quarries)
<i>Avifauna</i>			
¹ Barn Swallow	<i>Hirundo rustica</i>	Threatened	Foraging habitat – observed in 2016 survey.
¹ Chimney Swift	<i>Chaetura pelagica</i>	Threatened	No – chimney is capped. None were observed during field investigations.
¹ Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	Special Concern	Yes - Hazard lands
^{1,2} Eastern Meadowlark	<i>Sturnella magna</i>	Threatened	Yes - Suitable habitat on adjacent lands
^{1,2} Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Yes - Suitable habitat on adjacent lands
¹ Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Special Concern	Yes – observed on site
<i>Reptiles/Amphibians</i>			
¹ Western Chorus Frog	<i>Pseudacris triseriata</i>	Threatened	Yes - Hazard lands
<i>Vegetation</i>			
¹ Butternut	<i>Juglans cinerea</i>	Endangered ESA Regulated	Not observed during field investigations.
<i>Other</i>			
¹ Monarch	<i>Danaus plexippus</i>	Special Concern	Yes – milkweed observed on site

Source: (1) MNRF, SARO List, SLR expertise; (2) NHIC (2017)

Designation Status

Provincial Status - Species at Risk in Ontario list maintained by the Ontario Ministry of Natural Resources and Forestry, O.Reg. 230/08. Endangered Species Act Regulation OMNR S.O. 2007, Chapter 6. Schedules 1 thru 5.4. O. Reg. 242/08.

Regional or Local

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC). S3 [Vulnerable] Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

Of the species identified above, the following are relevant to the site and proposed application:

- Bats (Little Brown Myotis, Northern Myotis, and Tri-coloured Bat);
- Butternut;
- Barn Swallow;
- Red-headed Woodpecker
- Bobolink, Eastern Meadowlark, Grasshopper Sparrow; and,
- Monarch Butterfly.

4.4.4.1 *Bats*

The swamp and wetland features provide opportunities for foraging and possible roosting for bats. Snag trees or trees with extensive leaf canopies may be used by bats (not just SAR). With Northern Myotis and Tri-coloured bats, woodlands are preferred as they provide the micro climates necessary for rearing young (proximity to water or ephemeral pools, swamps, understory structure providing feeding opportunity) while Little Myotis in Ontario has generally been restricted to anthropogenic structures.

The designation of Endangered is due to the presence of White Nose Syndrome with agencies concerned primarily for maternity roost sites (not individual day roosts). Within the property it is possible for trees and potentially the existing dwelling to be utilized by individuals as roosts. However, the woodland is not extensive and unlikely to contribute to roosting habitat for Northern Myotis or Tri-coloured bat. Their presence is expected to be associated with foraging. If suitable attic conditions are present within the house, it could be used by Little Brown Bats. However, the surrounding farms and the natural corridor likely provide more extensive habitat. Current direction from MNRF regarding SAR bats is evolving. On similar projects MNRF has requested that tree removal be avoided during periods of critical life stages. Typically, avoid tree removal from April to September when bats are most susceptible. No hibernation habitat is present on site. Any removal of building structures will require MNRF consultation and it is recommended that MNRF be consulted to confirm the avoidance window approach.

4.4.4.2 *Butternut.*

Suitable habitat for Butternut occurs in the hazard lands on the western portion of the site. No Butternut trees were observed on the subject lands or within 6 metres of the property during site investigations.

Survey Limitations

While every effort was used to detect the presence of Butternut on the property by visual examination, seedlings are difficult to detect due to visibility restrictions. Furthermore, seed dispersal (squirrels) may occur and seeds may remain dormant for prolonged periods. Thus

seedlings may occur in the future, especially if a parent tree occurs in the proximity to the subject property. To date there is no evidence of occurrence.

4.4.4.3 *Barn Swallow*

Barn Swallow were observed foraging over the pasture and agricultural lands. No nests were observed on the residential building. Nesting opportunities occur in the surrounding properties.

4.4.4.4 *Red-headed Woodpecker*

Mature trees and forest occur in the hazard lands that provide suitable habitat for the species including availability of cavities. This species was not recorded during 2016 and 2017 breeding bird surveys.

4.4.4.5 *Bobolink, Eastern Meadowlark, Grasshopper Sparrow*

Bobolink and Eastern Meadowlark, both Threatened species, were observed along the property boundaries and adjacent lands. The cultural meadow was heavily grazed by farm animals making the habitat not suitable for these species for nesting. Individuals observed are incidental and are utilizing the fence line as a perch for singing and the property as foraging opportunity and are likely breeding on adjacent lands.

Grasshopper Sparrows, Special Concern, were observed on the property utilizing the areas adjacent to the track. The habitat in this area provides suitable grass height and areas of bare ground. Evidence for nesting is confirmed as possible as these birds were observed in the appropriate habitat during the breeding season during all three surveys. However, this species is sensitive to habitat size, and on the property the fragment is approximately 0.2 ha. It is believed that this occurrence is a consequence of the grassland that extends to the northeast where larger areas persist with suitable vegetation.

4.4.4.6 *Monarch*

The host plant for Monarch, Common Milkweed (*Asclepias syriaca*), was observed sporadically on the site. One Monarch was observed in flight during the site investigations late in 2018, a year in which record numbers of Monarchs have emerged in Ontario. The potential for the site to be productive for Monarch was determined to be low due to the large area of cultivation and low numbers of Common Milkweed providing limited feeding opportunities for egg laying and forage for the caterpillar stage of the life cycle.

4.5 Significant Wildlife Habitat

Habitats as outlined within the SWHTG include *Seasonal Concentrations of Wildlife, Rare Vegetation Communities, Specialized Habitat for Wildlife [excludes Endangered and Threatened Species], and Animal Movement Corridors*. Criteria for Ecoregion 6E provide more detailed descriptions. The following candidate SWH features on the site were identified: Amphibian Breeding Habitat (Wetlands), Open Country Bird Breeding Habitat (Grasshopper Sparrow and Savannah Sparrow), Terrestrial Crayfish and Special Concern Species Habitat (Grasshopper Sparrow, Eastern Wood-peewee).

4.5.1 Amphibian Breeding Habitat (Wetlands)

Amphibian surveys confirmed the presence of 3 species listed in the Significant Wildlife Habitat Guidelines by MNRF (2002). The threshold for designation is:

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

The data indicate that the treed swamp (SWD4-3)/meadow marsh (MAM2-3) is borderline SWH since both Spring Peeper and Gray Treefrog were recorded as a full chorus, but not on the same evening. Due to fluctuations in populations, an additional year of monitoring would provide greater certainty if necessary.

4.5.2 Open Country Bird Breeding Habitat (Grasshopper Sparrow and Savannah Sparrow)

Breeding bird surveys confirmed the presence of 2 species listed in the Significant Wildlife Habitat Guidelines by MNRF (2002). The threshold for designation includes a minimum area of >30ha not including active farming. Suitable habitat is marginal for Grasshopper Sparrow and measures 2.6 ha, which is below the threshold. Therefore, SWH for these species is not identified on the subject lands. Special Concern Species Habitat (Grasshopper Sparrow, Eastern Wood-pewee)

Breeding bird surveys confirmed the presence of 2 species listed under the Endangered Species Act, 2007 whose habitat may qualify as SWH as per the Significant Wildlife Habitat Guidelines by MNRF (2002). They include the Grasshopper Sparrow discussed above, a grassland specialist, and Eastern Wood-pewee, a forest bird. The habitat for both of these species is small.

4.5.3 Terrestrial Crayfish

Site investigation confirmed the presence of Chimney or Digger Crayfish listed in the Significant Wildlife Habitat Guidelines by MNRF (2002). The chimneys were observed in lands currently under cultivation, and not in the ELC ecosites identified although “moist terrestrial sites” is mentioned. The SWH is limited to the area of meadow marsh or swamp, therefore the Poplar Mineral Deciduous Swamp (SWD4-3), Red-osier Dogwood Mineral Swamp Thicket (SWT2-5) and Reed-canary Grass Mineral Meadow Marsh (MAM2-2) constitutes candidate SWH, although no chimneys were observed due to the dense vegetation obscuring the chimneys.

4.6 Corridors and Wildlife Linkages

Although the wetlands on the property provide important wildlife functions, they are virtually isolated by development to the southeast and east, and by agriculture to the north and west “Significant Woodland” abuts the southern boundary of the subject property on the south side of Glenelg Street as mapped in Appendix B of the Grey County Official Plan (OP). There is also a wetland associated with the woodland where calling amphibians were observed. The hazard lands mapped in the Southgate Township OP and County’s OP will be protected and the connection to the adjacent significant woodland and wetland maintained.

5.0 SIGNIFICANCE AND SENSITIVITY

5.1 Aquatic Environment

Although the aquatic environment provides low fish habitat function, the headwater drainage feature evaluation (TRCA and CVC 2014) recommends protection based on hydrological function associated with the channelized drainage feature that occurs within the meadow marsh and deciduous swamp along the west side of the study area.

The wetland along the south side of Glenelg Street immediately south of proposed development was examined. Robust vegetation and some dry preferential pathways for water flow were noted but no fish habitat was observed in the feature.

5.2 Significant Woodlands

The Grey County Official Plan designates the woodland south of Glenelg Street as significant based on its location within a settlement area, and its size. The woodland north of Glenelg is not designated as significant. As described, much of the “woodland” mapped on the property is Poplar Mineral Deciduous Swamp with small patches of coniferous and deciduous forest.

There are no species of the flora that are rare or uncommon according to the Natural Heritage Information Centre.

5.3 Wetlands

Three types of wetland comprise the large unit on the west side of the subject lands. The unit is identified in the Grey County Natural Heritage System Study (2017) but they have not been evaluated. The Melancthon Provincially Significant wetland occurs some distance to the southeast however the wetlands do not appear to discharge to the south, and are therefore hydrologically isolated from that complex. Identified wetland complexes to the west and south are not provincially significant. Therefore, the applicable policy framework consists of the two Official Plans and the two conservation authority regulations.

They are maintained by a combination of surface water contributions (precipitation, runoff from lands to the east) and a fluctuating groundwater table. The latter is weakly indicated by the presence of Balsam Groundsel, Yellow Sedge and Alderleaf Buckthorn together with the Digger Crayfish. It will be important to maintain groundwater recharge and to ensure that sufficient water collects to support the amphibian breeding pools.

Note that the terrain is relatively flat and the wetland water is slow to discharge. When it does, the direction is generally to the north where the water level remaining in the wetland will be controlled by the elevation of the outlet. These wetlands generally dry out in summer except for the area around the drainage ditch where the excavation may have intersected the water table. The water volume in spring is a result of the spring freshette, controlled by outlet and subject to variations in climate. Volumes in excess of the storage capacity of the wetland will decant. In other words, the excess water flows through the system, while the ephemeral breeding pools are maintained, and dry out through a combination of infiltration and evaporation. This mechanism makes the pools less sensitive to variation in water supply.

5.4 Wildlife

The community of birds, amphibians and mammals observed on the site are generally secure in Ontario and common in rural agricultural landscapes. Those that are designated as species of conservation concern are discussed in the following section.

5.5 SAR and SWH

Candidate SWH identified on site includes:

- The treed swamp (SWD4-3)/meadow marsh (MAM2-3);
- Special Concern Species Habitat (Grasshopper Sparrow, Eastern Wood-pewee); and,
- Terrestrial Crayfish.

The Reed-canary Grass Mineral Meadow Marsh and Poplar Mineral Deciduous Swamp are likely SWH for amphibian breeding, and together with the Reed-canary Grass Mineral Meadow Marsh likely provide habitat for Digger Crayfish as well. The habitat for the latter within the agricultural fields is excluded from designation, but will be protected within the 10m buffer to the wetland as a precautionary approach. Advice published in 2005 concluded that while “never locally common there are many occurrences of this species in southern Ontario” (Environment Canada 2005). To date neither the provincial nor federal government has listed the species beyond noting its sensitivity to development.

With respect to SAR Endangered and Threatened Species, although individuals were observed visiting the site, breeding was not confirmed except for Western Chorus Frog. This species is listed as Threatened both provincially and federally. Both the species and its habitat is protected under the Endangered Species Act, 2007. Any removal of habitat is subject to discussion with the Ministry of Environment, Conservation and Parks and a permit and commitment to creating an overall benefit to the species may be required.

5.6 Corridors and Wildlife Linkage

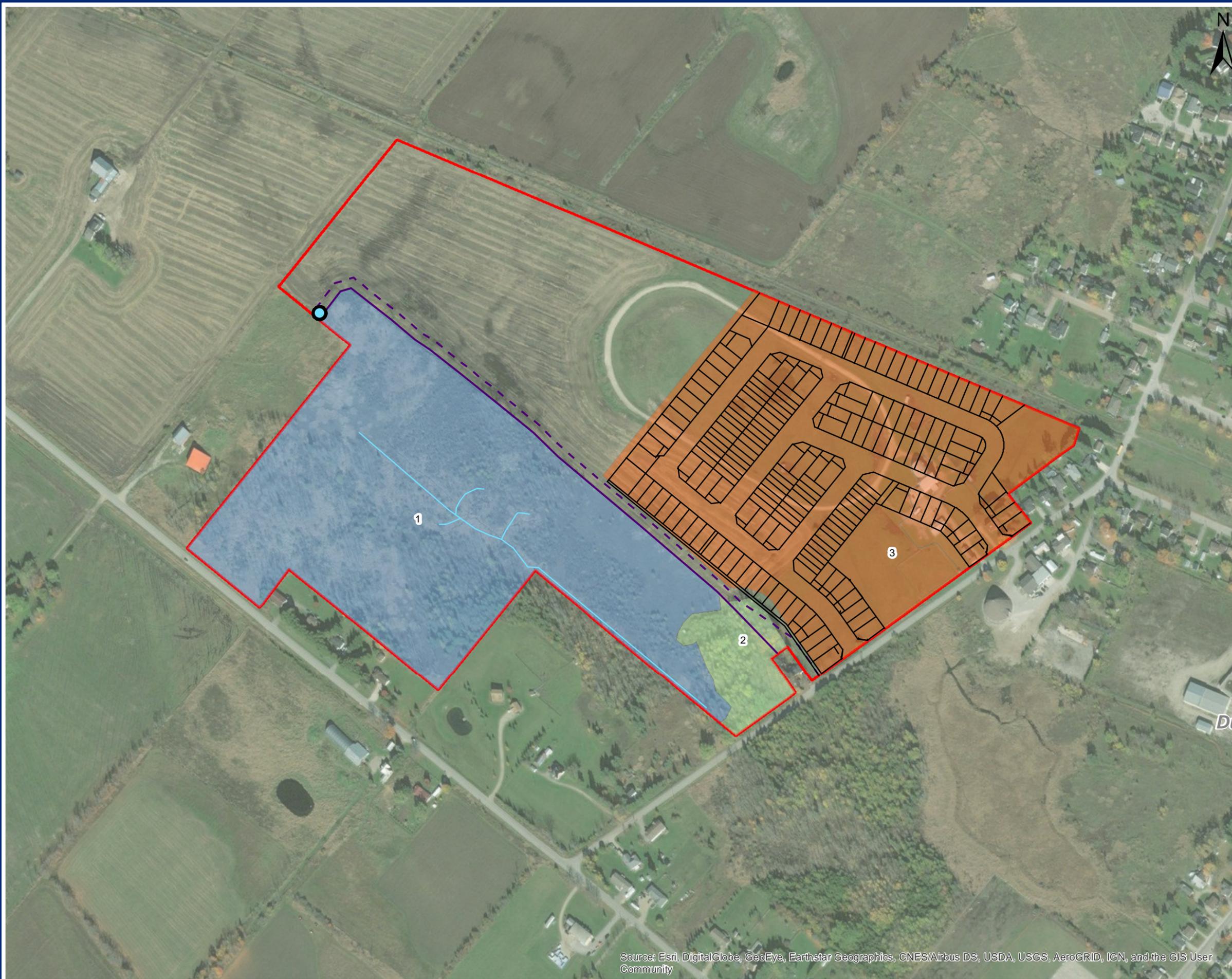
The linkage across Glenelg Street is the most important connection adjacent to the study area through the Fresh-Moist Sugar Maple – lowland Ash Deciduous Forest.

6.0 DESCRIPTION OF THE DEVELOPMENT

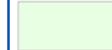
The overall property is 33.3 ha with 14.6 ha included in this draft plan. The development proposed for the subject property includes a Low Density Residential Plan consisting of 118 single detached lots and 65 townhouse units when fully built out. **Figure 3** illustrates the concept plan prepared by MHBC, showing the storm water management area, mix of housing units, walkways, open space, setbacks, park and other features. The Open Feature includes the forest, thicket swamp, portions of the meadow marsh and deciduous swamp and a channelized drain, protected from the proposed development.

Approximately 8.5 ha of the overall property drains south and the remaining 24.8 ha drains to the west. Surface water currently flowing from 4 ha of land to the wetland along the west side of the property will be diverted south via the storm water management system. Proposed stormwater discharge is to the wetland south of Glenelg Street with treatment to MOECC enhanced protection level.

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LEGEND

-  Property Boundary
-  Tile Drain Outlet
-  Site Plan (MHBC, Mar 24, 2020)
-  Drain
-  Staked Dripline (Schaeffer Dzaldov Bennett Ltd., Staked June 25, 2018)
-  Wetland and Dripline Buffer (10m)
-  1: Wetland
-  2: Woodland
-  3: Development Envelope



SCALE: 1:4,000
WHEN PLOTTED CORRECTLY AT 11 x 17
NAD 1983 UTM Zone 17N

NOTES

This map is for conceptual purposes only and should not be used for navigational purposes.

Basedata: Digiglobe, (Oct 22, 2014)

FLATO DEVELOPMENT INC.

GLENELG DEVELOPMENT

DRAFT PLAN OVERLAY

March 25, 2020	Rev 0.0	Figure No.
Project No. 209.40385.00000		3



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

7.0 IMPACT ASSESSMENT

The development has been located to protect most of the natural features (Figure 3). No wetlands will be removed, and the mid-wetland drain will remain intact. The primary potential source of impact to ecosystem functions is the anticipated change in the distribution of surface water and the potential for groundwater drawdown.

7.1 Aquatic Environment

Protection is provided to the intermittently flowing channelized drain within the meadow marsh and deciduous swamp by the buffer along the western limit of development, thus minimizing potential effects from the proposed development.

Post development peak storm water flows will be controlled to pre-development conditions, thus protecting channelized features. In addition, storm water management design of 80% removal efficiency for total suspended solids will provide enhanced protection (Crozier 2018, MOECP standard).

No fish habitat occurs in the wetland on the south side of Glenelg Street. The vegetation is dominated by Narrow-leaved Cattail (*Typha angustifolia*) and Reed-canary Grass (*Phalaris arundinacea*), both of which are robust and tolerant of urban discharge conditions. Absence of fish habitat and the nature of the vegetation make this wetland a good candidate receptor for stormwater discharge from the proposed development.

7.2 Vegetation

There will be no wetland removed as a result of the draft plan. The draft plan encroaches slightly into the edge of the woodland.

The soils are silty sands that permit some infiltration. Grades on the plan are anticipated to be 2%. On the basis that runoff will have an opportunity to infiltrate, and the low grade allows the water to remain in the backyards due to the low velocity of runoff, the buffer to the wetland required for water quality can be reduced to 10 m. The wildlife inventories did not record any sensitive species breeding close to the edge of the swamp, therefore there is not a requirement to provide wider buffers to protect wildlife function, especially as the draft plan anticipates that backyards will abut the buffer.

In order to maintain a straight edge to the draft plan, and in view of the disturbed edge of the woodland, half of which is a hedgerow beside the neighbouring house and driveway, the plan will likely remove a few trees, totalling 14 m². A 10 m buffer is proposed adjacent to the property line that will protect the trees on the neighbouring property.

In order to enhance the water quality improvement function of the buffer, they will be ecologically restored using a native meadow seed mix that will provide suitable water quality control. The buffers should be allowed to naturally revegetate.

It is expected that the hydrogeology report will demonstrate a minimal drawdown effect with respect to the groundwater table associated with the wetland. The Functional Servicing Report (Crozier 2018) anticipates that water that currently reaches the wetland through sheet flow will now be diverted through the subdivision to be discharged south of Glenelg Street.

The draft plan area, including wetland and woodland (future Open Space) totals 14.6 ha. The Open Space block, including buffers, totals 3.3 ha. Of the remaining approximately 11 ha, about 4 ha (~27%) of runoff will be redirected to the south. That is to say that about 7.5 ha will continue to discharge as per pre-construction conditions.

This diversion of water runoff could be important if it resulted in desiccation of the soils and a failure to maintain wetland conditions. However, most of the plants in the wetland are those that are tolerant of drier conditions and are called facultative wetland species. These are species that are routinely found in upland sites about 30% of the time. The wet conditions on the property are maintained by a combination of groundwater and surface water supply. The presence of the three near-fen plants and Digger Crayfish indicates that groundwater plays an important role and the surface water a lesser one in maintaining wetland conditions. The important function is the trapping of the spring freshette that creates suitable amphibian breeding habitat for several species of frogs and the toad including a Threatened species. This habitat will be maintained through a combination of relatively flat grades in the wetland and the invert of the outlet. Note that a drainage channel excavated in the middle of the wetland failed to drain it. The spring freshette will continue to fill the wetland, with excess decanting to the north as in the current condition.

As a precautionary measure, the runoff from the roofs and backyards adjacent to the wetland should be directed toward the wetland.

Stormwater from the proposed development will discharge to the wetland immediately south across Glenelg Street. The biodiversity in the wetland south of Glenelg Street is poor, an indicator of high nutrient levels. The dominant vegetation (a non-native cattail and Reed-canary Grass) is robust and common associated with stormwater discharge. This vegetation will provide enhanced protection in terms of water quality and quantity control if implemented as described in the Functional Servicing Report (Crozier 2018).

There will be no negative impact on the significant woodland south of Glenelg Street as a result of the proposed development.

7.3 Wildlife

Wildlife habitat occurs on the property in the form of residential/agricultural areas, grasslands, woodland and thicket. The latter two will be removed by the proposed development, however the species associated with residential and agricultural lands will return to the neighbourhood following construction. The grasslands are small and biodiversity is low in those areas, and they will be permanently removed. See the discussion below regarding the SAR recorded from that location.

All of the wetlands and most of the woodland will remain with the implementation of the Plan. The 10 m buffer to these features captures the chimneys produced by the Digger Crayfish, therefore it is expected that the population will not be affected. It is expected that the hydrogeology report will demonstrate a minimal drawdown effect with respect to the groundwater table associated with the wetland. The 10 m buffer will be naturalized and function to increase the size of these natural areas to the advantage of wildlife.

7.4 Species at Risk and Significant Wildlife Habitat

Western Chorus Frog is the only Threatened species breeding in the northern wetland. It's habitat will be maintained through mitigation that addresses infiltration of groundwater. The 10 m buffer will provide water quality improvements for runoff directed to the feature from the backyards.

The grasslands and agricultural verges provide foraging habitat for four listed species: Monarch (Endangered), Barn Swallow Bobolink, and Eastern Meadowlark (both Threatened). MNRF/MECP will be contacted with respect to appropriate compliance with the Endangered Species Act, 2007, if any. Similarly, the Ministry will be contacted to confirm that timing windows can be used to mitigate the presence of *Myotis* sp. using any trees removed and the residence.

Two species of Special Concern are considered to be breeding on the property: Grasshopper Sparrow and Eastern Wood-pewee. This habitat is also considered to be Significant Wildlife Habitat in the context of the PPS.

The habitat for the Grasshopper Sparrow is very small, and the occurrence is likely an artefact of the surrounding grasslands. Within a settlement area, this species will not persist. Suitable habitat will be provided in the buffers, however in aerial extent they will be too small to support the species. It is expected that the population will be maintained in the pastures in the surrounding countryside, outside the designated settlement area.

Habitat for the Eastern Wood-pewee is limited to the forest and treed swamp. These areas will be enhanced through the application of buffers. The species is expected to remain on site.

7.5 Summary of Impact Analysis

Table 5 provides a synopsis of the key features and/or functions that occur on the site together with the potential impact that could be created by the proposed draft plan, and the recommended mitigation.

Table 5. Summary of Impacts and Recommended Mitigation

Feature/Function	Sensitivity	Mitigation
Wetland	Desiccation through groundwater drawdown and diversion of surface water runoff; Changes in water quality discharged to the wetland	The hydrogeology report will provide mitigation to prevent a drawdown associated with the installation of services, or a blockage of groundwater flow to the wetland. No further mitigation is required. Surface water will be diverted away from the wetland (~27%), however the critical amphibian breeding functions will still occur since they are maintained by spring freshette that is retained

Feature/Function	Sensitivity	Mitigation
		<p>behind the invert of the outlet.</p> <p>Water quality impairment is not an issue since all water originating on the subdivision will be directed south of Glenelg St.</p> <p>The area of the woodland (forest) and wetland will be enhanced through the addition of 10 m buffers that will be planted in native meadow and allowed to naturalize.</p>
Wildlife Habitat	Habitat removal consisting of agricultural fields and pasture.	<p>Wildlife habitat will be maintained in the Open Space block that has been enlarged through the application of buffers.</p> <p>An array of urban tolerant wildlife will continue to occur on the property.</p>
<p>Species of Conservation Concern</p> <ul style="list-style-type: none"> • Special Concern Species Habitat <ul style="list-style-type: none"> ○ Grasshopper Sparrow ○ Eastern Wood-pewee • Western Chorus Frog 	Habitat removal consisting of agricultural fields and pasture.	<p>The habitat for the Grasshopper Sparrow will persist in the surrounding countryside; habitat within the draft plan is too small to support the species.</p> <p>Wetland and forest will be enhanced through the application of buffers.</p> <p>Western Chorus Frog habitat will be maintained through mitigation that maintains the wetlands.</p>
<p>Species of Conservation Concern</p> <ul style="list-style-type: none"> • SAR Bats 	Removal of roosting opportunities	Timing of tree and residence removal to avoid the window of active bat roosting, typically from April to September.

8.0 POLICY CONFORMITY

The following section describes policies relevant to the natural environment and describes how the natural heritage features identified within this EIS have been addressed. Policy conformity is summarized in **Table 6**.

Table 6. Summary of Policy Conformity

Policy	Conformity	Rationale
Provincial Policy Statement	In compliance	<ul style="list-style-type: none"> • No PSW or ANSI identified on subject property or adjacent land • No woodlands occur within the subject property site that would qualify as candidate features for evaluation • Fish habitat contributes allochthonous transport to downstream habitat • Sensitive features associated with the wetlands and the woodland will remain on the landscape • The 10 m buffer to the features captures the chimneys produced by the Digger Crayfish • We anticipate the hydrogeology report will demonstrate a minimal drawdown effect with respect to the groundwater table associated with the wetland • Habitat for threatened species identified on the subject property will be protected
Grey County Official Plan	In compliance	<ul style="list-style-type: none"> • Proposed development located in primary settlement area, Schedule A, Map 2 • Approximately 14 m² of the woodland to the west will be removed, however this woodland is not considered significant (Map 3, Grey County Natural Heritage System) • Proposed development will be set back 10 m from the woodland on the adjacent land
Township of Southgate Official Plan	Not applicable	<ul style="list-style-type: none"> • The plan shows no significant natural environment features on or adjacent to the proposed development • Proposed development will be set back 10 m from the wetland; there will be minimal encroachment into the woodland and application of 10 m from the woodland on the adjacent land
Ontario Regulation 150/06 (GRCA) and 169/06 (SVCA)	In compliance	<ul style="list-style-type: none"> • Proposed development set back 10m from wetland identified along west side of subject property • No interference with the wetland is anticipated • Outlet of stormwater south of Glenelg Street will comply with MOE/MECP requirements

Policy	Conformity	Rationale
Endangered Species Act (ESA, 2007)	In compliance with MNRF/MECP follow-up	<p>Foraging and natural roosting habitat for bats will be maintained within the wetland and the woodland.</p> <p>Breeding habitat and summer refuge for Western Chorus Frog will be maintained in the wetland.</p> <p>Foraging habitat for Bobolink, Eastern Meadowlark and Grasshopper Sparrow will be affected by the development.</p> <p>Consultation with MNRF regarding the potential for bat roosting in the residence and further discussion of the effects to foraging habitat for SAR birds will occur consistent with MNRF/MECP protocol.</p>
Migratory Birds Convention Act (MBCA, 1994)	Compliance anticipated	Vegetation clearing will not occur within the breeding bird period provided under Environment Canada guidance for periods of highest nesting probability (i.e. cannot occur generally between April 1st and August 31st).

9.0 CONCLUSIONS AND RECOMMENDATIONS

The subject lands are located within lands currently in agricultural land use. The proposal does not anticipate creation of impacts to fish or fish habitat and provisions have been made for the management of the terrestrial linkage associated with the wetlands and woodland to minimize the impacts on connectivity and corridor function.

We recommend that best management practices be in place with respect to sediment and erosion control, vegetation clearing and construction timing windows and stabilization of disturbed soils. The analysis of the natural heritage features and functions associated with proposed draft plan indicate that the proposed community within the Southgate Official Plan can proceed within the context of provincial and regional policies to protect essential natural heritage function and species at risk within the landscape in the long term. Thus the draft plan is supportable from a natural heritage system perspective.

9.1 Recommendations

The following operational constraints and mitigation strategies are recommended for use during the construction phase of this project for the protection of natural heritage features and functions on and adjacent to the subject lands:

- Recommendations as outlined in the accompanying application documents (i.e. Geotechnical Investigation reports and or Hydrogeology reports are to be respected);
- Permanent post and rail wire or chain-link fence is recommended along the limits of proposed buffers. This fencing should be sturdy beyond the typical rebar and sediment fabric fence. Prior to the commencement of construction, the limits of protection areas (buffers) are to be delineated and fenced to avoid inadvertent intrusion of machinery or other activities such as stockpiling of materials. Temporary sediment control fencing can be attached to the fencing and must be maintained and remain in place until final grading and landscaping has been completed.
- Grading limits are to respect minimum root protection zones for trees along the woodland and where present along the wetland edge. Minimum protection of the root zone is measured the base of the tree to the tree's dripline. Earthworks/ grading, stockpiling of material etc. is to be directed away from protection areas. Final site grading and design is to ensure these areas are not encroached upon unless approved by the Township and GRCA where minor grading intrusions may be necessary (e.g. to match grades),
- Vegetation removals associated with construction related activities are to be minimized. Additional tree hording/ fencing may be required in consultation with the GRCA to prevent intrusion and stockpiling of materials into adjacent forests and swamps.
- Stockpiling of materials should be kept away from adjacent natural features; no fill should be placed in and around the wetland communities;
- Exposed soils should be re-vegetated as soon as possible with native seed mixes to reduce erosion. If stabilization is not possible by plantings, then other appropriate erosion controls (e.g. coir mats) should be applied in the interim;
- It is the responsibility of the proponent to ensure that the works are in conformity with the Migratory Bird Convention Act and Endangered Species Act, 2007 in that no migratory

bird(s) or SAR species will be harassed, harmed, killed or nests / habitats destroyed by the proposed work. The recommended avoidance window (where vegetation removal should be avoided) is from April 1 to August 31st. No avoidance window absolves the proponent or their contractors from contriving the MBCA or ESA. If a nest, egg, fledging or SAR species is encountered work must stop and the appropriate agency (e.g. Environment Canada and Climate Change) be consulted for advice.

- Restoration of the buffer is proposed. This is to be seeded with native species meadow mix (suitable for this growing region and soils). Native Milkweed (*Asclepias* sp.) should be incorporated into any buffer planting seed mix and where possible other natural areas on the property. The area is to be maintained as a maintenance free area for pollinators and edge bird species using GRCA/SVCA specification and guidelines;
- To protect wildlife in general, no animals are to be knowingly harmed. If wildlife is encountered during construction, work must stop and animals be allowed to disperse on their own. If necessary, the GRCA/SVCA or MNRF should be contacted for advice;
- Construction monitoring by an ecologist/arborist and certified inspector of sediment and erosion control (CISEC) is recommended as a part of a monitoring program to be developed with the GRCA/SVCA. This may include (but not limited to): photographic records, periodic SEC inspection reports and inspection of protected limits to ensure no encroachment and other mitigation measures are implemented.
- All outdoor lighting (including any new street lighting and external lighting on buildings) should be directed towards the ground and away from the natural areas.

In addition to these recommendations, the following requirements as provided through consultation with the Town, GRCA and MNRF pertain specifically to future land use planning, design and construction activities associated with the subject property:

- A permit from GRCA will be required as the subject property is regulated by Ontario Regulation 150/06;
- Prior to removing the house, consultation with MNRF under ESA, 2007 regarding bats must be completed.
- Compensation for the removal of foraging habitat for Bobolink, Eastern Meadowlark and Barn Swallow habitat will be determined through consultation with the MNRF in accordance with ESA policies;

Note: Species at Risk Information is accurate and up to date as of this report (September 2018). New species designation's under Ontario Regulation 230/08 (Species at Risk in Ontario List) occur periodically. It is the owner's responsibility to ensure that species and habitats regulated under *Endangered Species Act* (2007) or those described under other policies (i.e. the *Migratory Bird Convention Act*, *Fish and Wildlife Conservation Act*) are protected.

10.0 REFERENCES

- Brouillet, L., F. Coursol, S.J. Meades, M. Favreau, M. Anions, P. Bélisle & P. Desmet. 2010+. VASCAN, the Database of Vascular Plants of Canada. <http://data.canadensys>. Accessed December 2017.
- CBC News, 8 August 2017. Wild boars on the loose in Ontario are likely homegrown, says official Available online at: <https://www.cbc.ca/news/canada/toronto/wild-boars-on-the-loose-ontario-1.4238689>
- Environment Canada. 2010. Recovery Strategy for the Butternut (*Juglans cinerea*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa vii + 24 pp.
- Environment Canada. 2014. Recovery Strategy for the Western Chorus Frog (*Pseudacris triseriata*), Great Lakes / St. Lawrence – Canadian Shield Population, in Canada [Proposed], Species at Risk Act Recovery Strategy Series, Environment Canada, Ottawa, v + 46 pp
- Government of Canada, 1994. Migratory Birds Convention Act, S.C. 1994, c. 22. Available online at: <http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>
- Government of Canada. 2012. Species at Risk Public Registry. Available online: http://www.sararegistry.gc.ca/default_e.cfm
- Government of Ontario. 2007. Endangered Species Act.
- Grand River Conservation Authority, 2006. Ontario Regulation 150/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.
- Grey County, 2013. Grey County Official Plan.
- Township of Southgate, 2006. Southgate Official Plan.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray, 1998. Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.
- Ministry of Natural Resources and Forestry, 2012. Ecoregion Criterion Schedules including Significant Wildlife Habitat Technical Guide (2000).
- Ministry of Natural Resources and Forestry. 2017. Land Information Ontario. Accessed August 2017. “Map a Map” Natural Features including Element occurrence information (Natural Heritage Information Centre database).
- Ministry of Natural Resources and Forestry. 2018. Species at Risk in Ontario. Accessed on line <https://www.ontario.ca/environment-and-energy/species-risk-ontario-list>
- Ministry of Natural Resources and Forestry. 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement. Second Edition. Toronto: Queen’s Printer for Ontario. 248 pp.
- Natural Resource Solutions Inc., 2017. Grey County Natural Heritage System Study “Green in Grey” <https://www.grey.ca/programs-initiatives/green-grey-natural-environment-study>
- Ontario Geological Survey 2010. Surficial geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128-REV
- Ontario Ministry of Municipal Affairs and Housing, 2005. Provincial Policy Statement. Available at: <http://www.mah.gov.on.ca>

Saugeen Valley Conservation Authority, 2006. Ontario Regulation 169/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

Sirati & Partners Consultants Ltd., 2017 Preliminary Report on Geotechnical Investigation Proposed Residential Development, 231 Glenelg Street, Township of Southgate, Dundalk, Ontario.

Wild Pigs in Canada, 2017. Accessed online <http://wildpigscanada.ca/wild-boar-information/history/>.

Wild Species, 2005. The General Status of Species in Canada, Section 2: Crayfishes. Accessed 24 Sept 2018 <https://www.registrelep-sararegistry.gc.ca>

11.0 STATEMENT OF LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by SLR Consulting (Canada) Ltd. (SLR) for 2358737 Ontario Inc., hereafter referred to as the "Client". The report has been prepared in accordance with the Scope of Work and agreement between SLR and the Client. It is intended for the sole and exclusive use of Client. Other than by the Client and as set out herein, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted unless payment for the work has been made in full and express written permission has been obtained from SLR.

This report has been prepared for specific application to this site and site conditions existing at the time work for the report was completed. Any conclusions or recommendations made in this report reflect SLR's professional opinion.

Information contained within this report may have been provided to SLR from third party sources. This information may not have been verified by a third party and/or updated since the date of issuance of the external report and cannot be warranted by SLR. SLR is entitled to rely on the accuracy and completeness of the information provided from third party sources and no obligation to update such information.

Nothing in this report is intended to constitute or provide a legal opinion. SLR makes no representation as to the requirements of compliance with environmental laws, rules, regulations or policies established by federal, provincial or local government bodies. Revisions to the regulatory standards referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary.

The Client may submit this report to related environmental regulatory authorities or persons for review and comment purposes.

APPENDIX A
Botanical Inventory

2358737 Ontario Inc.
Glenelg Residential Subdivision
SLR Project No.: 209.40385

Common Name	Scientific Name	SRank ¹	SARA ²	SARO ³	MAM2-2	SWD4-3	SWT2-5	FOC4-1	FOD6-1	CUM1-1
Alderleaf Buckthorn	<i>Rhamnus alnifolia</i>	S5				x				
Alsike Clover	<i>Trifolium hybridum</i>	SNA								x
Alternate-leaf Dogwood	<i>Cornus alternifolia</i>	S5							x	
American Elm	<i>Ulmus americana</i>	S5				x				
American Larch	<i>Larix laricina</i>	S5				x		x		
Bald Spikerush	<i>Eleocharis erythropoda</i>	S5			x					
Balsam Groundsel	<i>Packera paupercula</i>	S5			x					
Balsam Poplar	<i>Populus balsamifera</i>	S5				x				
Bebb's Willow	<i>Salix bebbiana</i>	S5				x	x			
Bird's-foot Trefoil	<i>Lotus corniculatus</i>	SNA								x
Black Ash	<i>Fraxinus nigra</i>	S5				x				
Bracken Fern	<i>Pteridium aquilinum</i>	S5						x	x	
Broad-leaved Water-plantain	<i>Alisma subcordatum</i>	S5			x					
Choke Cherry	<i>Prunus virginiana</i>	S5							x	
Climbing Nightshade	<i>Solanum dulcamara</i>	SNA			x	x	x			
Colt's Foot	<i>Tussilago farfara</i>	SNA								x
Common Apple	<i>Malus pumila</i>	SNA							x	
Common Burdock	<i>Arctium minus</i>	SNA								x
Common Dandelion	<i>Taraxacum officinale</i>	SNA						x	x	x
Common Milkweed	<i>Asclepias syriaca</i>	S5								x
Crack Willow	<i>Salix euxina</i>	SNA							x	
Dwarf Raspberry	<i>Rubus pubescens</i>	S5				x				
European Mountain-ash	<i>Sorbus aucuparia</i>	SNA							x	
False Solomon's seal	<i>Maianthemum racemosum</i>	S5							x	
Field Horsetail	<i>Equisetum arvense</i>	S5			x	x	x			
Fowl Bluegrass	<i>Poa palustris</i>	S5			x					
Fowl Mannagrass	<i>Glyceria striata</i>	S5			x	x	x			
Fox sedge	<i>Carex vulpinoidea</i>	S5			x					
Fringed Loosestrife	<i>Lysimachia ciliata</i>	S5				x				
Graceful sedge	<i>Carex gracillima</i>	S5			x	x			x	
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	S5			x					
Gray-stemmed Goldenrod	<i>Solidago nemoralis</i>	S5			x					x
Green Ash	<i>Fraxinus pennsylvanica</i>	S4				x	x			
Hawthorn species	<i>Crataegus species</i>	--							x	
Kentucky Bluegrass	<i>Poa pratensis</i>	S5								x
Kentucky Fescue	<i>Lolium arundinaceum</i>	SNA					x			x
Lake-bank sedge	<i>Carex lacustris</i>	S5			x	x				
Manitoba Maple	<i>Acer negundo</i>	S5				x	x	x	x	x

Common Name	Scientific Name	SRank ¹	SARA ²	SARO ³	MAM2-2	SWD4-3	SWT2-5	FOC4-1	FOD6-1	CUM1-1
Marsh Bedstraw	<i>Galium palustre</i>	S5			x		x			
Michaux's sedge	<i>Carex michauxiana</i>	S5?			x					
Narrow-leaved Cattail	<i>Typha angustifolia</i>	S5			x					
Narrow-leaved Meadow-sweet	<i>Spiraea alba</i>	S5			x		x			
Norway Spruce	<i>Picea abies</i>	SNA						x	x	
Old-field Cinquefoil	<i>Potentilla simplex</i>	S5								x
Orchard Grass	<i>Dactylis glomerata</i>	SNA								x
Oxeye Daisy	<i>Leucanthemum vulgare</i>	SNA								x
Panicled Aster	<i>Symphyotrichum lanceolatus</i>	S5			x		x			
Purple-stemmed Aster	<i>Symphyotrichum puniceus</i>	S5			x					
Pussy Willow	<i>Salix discolor</i>	S5					x			
Red-osier Dogwood	<i>Cornus sericea</i>	S5			x	x	x	x	x	
Reed Canary Grass	<i>Phalaris arundinacea</i>	S5			x	x	x			x
Retrorse sedge	<i>Carex retrorsa</i>	S5			x					
Shining Willow	<i>Salix lucida</i>	S5				x	x			
Silver/Fremans Maple	<i>Acer x freemanii</i>	SNA				x				
Silverweed	<i>Potentilla anserina</i>	S5								x
Smooth Brome	<i>Bromus inermis</i>	SNA								x
Soft Rush	<i>Juncus effusus</i>	S5			x					
Soft-stemmed Bulrush	<i>Schoenoplectus tabernaemontani</i>	S5			x					
Spotted Jewelweed	<i>Impatiens capensis</i>	S5			x					
Spotted Joe-pye Weed	<i>Eupatorium maculatum</i>	S5			x		x			
Strict Blue-eyed-grass	<i>Sisyrinchium montanum</i>	S5								x
Sugar Maple	<i>Acer saccharum</i>	S5							x	
Tall Buttercup	<i>Ranunculus acris</i>	SNA								x
Tall Fescue	<i>Lolium arundinatum</i>	SNA								x
Tall Goldenrod	<i>Solidago altissima</i>	S5			x					x
Timothy	<i>Phleum pratense</i>	SNA			x		x			x
Trembling Aspen	<i>Populus tremuloides</i>	S5				x			x	
Virginia Strawberry	<i>Fragaria virginiana</i>	S5							x	x
White Ash	<i>Fraxinus americana</i>	S5							x	
White Cedar	<i>Thuja occidentalis</i>	S5				x		x		
White Spruce	<i>Picea glauca</i>	S5						x		
Wild Carrot	<i>Daucus carota</i>	SNA					x			x
Wild Mock-cucumber	<i>Echinocystis lobata</i>	S5								x
Woolgrass Bulrush	<i>Scirpus atrovirens</i>	S5			x		x			
Woolly Burdock	<i>Arctium tomentosum</i>	SNA								x
Yellow sedge	<i>Carex flava</i>	S5			x					

¹S-Ranks - Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

S1 Critically Imperiled—Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.

S2 Imperiled—Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

S3 Vulnerable—Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 Secure—Common, widespread, and abundant in the nation or state/province.

S#S# Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

SX Apparently extirpated from Ontario, with little likelihood of rediscovery. Typically not seen in the province for many decades, despite searches at known historic sites.

SNA (Formally SE) Exotic; not believed to be a native component of Ontario's flora.

²SARA - Species at Risk Act (S.C. 2002, c. 29) Act current to 2018-08-19 and last amended on 2018-05-30.

³SARO - ONTARIO REGULATION 230/08 under the Endangered Species Act, 2007 species at risk in Ontario list. Act current to 2018-08-21. COSEWIC (Committee on the Status of Endangered Wildlife in Canada)

EXT Extinct - A species that no longer exists.

EXP Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.

END Endangered - A species facing imminent extirpation or extinction.

THR Threatened - A species likely to become endangered if limiting factors are not reversed.

SC Special Concern (formerly vulnerable) - A species that may become a threatened or an endangered species because

of a combination of biological characteristics and identified threats.

NAR Not At Risk - A species that has been evaluated and found to be not at risk of extinction given the current circumstances.

DD Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of extinction.

APPENDIX B
Wildlife Observations

2358737 Ontario Inc.
Glenelg Residential Subdivision
SLR Project No.: 209.40385

Appendix B - Wildlife Observations

Common Name	Scientific Name	SRank ¹	SARA ² COSEWIC Designation then Schedule	SARO ³	Highest Breeding Evidence Observed ⁴	SWT/SWD/MAM (Wildlife Unit 1)	Woodland (Wildlife Unit 2)	Agricultural Lands (Wildlife Unit 3)	Comments
Avifauna									
Alder Flycatcher	<i>Empidonax alnorum</i>	S5B,SZN			AE	x			Only observed in 2017 surveys
American Crow	<i>Corvus brachyrhynchos</i>	S5B,SZN			H	x	x	x	
American Goldfinch	<i>Carduelis tristis</i>	S5B,SZN			FY	x		x	
American Redstart	<i>Setophaga ruticilla</i>	S5B,SZN			S	x			Female observed during 2017 survey only
American Robin	<i>Turdus migratorius</i>	S5B,SZN			FY	x	x	x	Observed foraging in agricultural lands
Barn Swallow	<i>Hirundo rustica</i>	S5B,SZN	THR SCH 1 THR	THR	H			x	Observed foraging throughout property
Black-capped Chickadee	<i>Poecile atricapillus</i>	S5			A	x			
Blue Jay	<i>Cyanocitta cristata</i>	S5			S	x		x	
Bobolink	<i>Dolichonyx oryzivorus</i>	S4B,SZN	THR SCH 1 THR	THR	XX	x			Observed on adjacent lands northwest of the property limits singing on the fence post
Canada Goose	<i>Branta canadensis</i>	S5B,SZN			FY			x	Foraging and resting in agricultural lands
Chipping Sparrow	<i>Spizella passerina</i>	S5B,SZN			H			x	Only observed during 2016 surveys
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	S5B,SZN			H			x	Only observed during 2016 surveys
Common Grackle	<i>Quiscalus quiscula</i>	S5B,SZN			S	x		x	
Common Yellowthroat	<i>Geothlypis trichas</i>	S5B,SZN			DD	x			Only observed during 2017 surveys
Eastern Kingbird	<i>Tyrannus tyrannus</i>	S5B,SZN			H			x	Observed utilizing agricultral edges for foraging opportunities
Eastern Meadowlark	<i>Sturnella magna</i>	S5B,SZN	THR SCH 1 THR	THR	FY			x	Femal obsered in small grassy area within property, and perched on post of horse ring. One male observed perched and calling from fench post in small area within property near north property line; other birds were heard calling from the northeast on adjacent lands.
Eastern Phoebe	<i>Sayornis phoebe</i>	S5B,SZN						x	
European Starling	<i>Sturnus vulgaris</i>	SE			P			x	
Field Sparrow	<i>Spizella pusilla</i>	S5B,SZN			H			x	Only observed in 2016 surveys
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	S4B,SZN	SC SCH 1 SCH	SC	H			x	
Gray Catbird	<i>Dumetella carolinensis</i>	S5B,SZN			H	x		x	
Great Egret	<i>Casmerodius albus</i>	S2B,SZN			X			x	Observed as a flyover
Hairy Woodpecker	<i>Dryobates villosus</i>	S5			S		x		
Herring Gull	<i>Larus argentatus</i>	S5B,S5N			X			x	
House Wren	<i>Troglodytes aedon</i>	S5B,SZN			P	x		x	
Indigo Bunting	<i>Passerina cyanea</i>	S5B,SZN			T			x	Only observed during 2016 surveys
Killdeer	<i>Charadrius vociferus</i>	S5B,SZN			FY			x	
Mourning Dove	<i>Zenaida macroura</i>	S5B,SZN			FY	x		x	
Northern Cardinal	<i>Cardinalis cardinalis</i>	S5			S	x			Only observed during 2017 surveys

Appendix B - Wildlife Observations

Common Name	Scientific Name	SRank ¹	SARA ² COSEWIC Designation then Schedule	SARO ³	Highest Breeding Evidence Observed ⁴	SWT/SWD/MAM (Wildlife Unit 1)	Woodland (Wildlife Unit 2)	Agricultural Lands (Wildlife Unit 3)	Comments
Northern Flicker	<i>Colaptes auratus</i>	S5B,SZN			S	x			
Northern Harrier	<i>Circus hudsonius</i>	S4B			H			x	
Pileated Woodpecker	<i>Dryocopus pileatus</i>	S4S5			H	x			Observed foraging in larger trees in hazard lands
Red-eyed Vireo	<i>Vireo olivaceus</i>	S5B,SZN			H		x	x	Only observed during 2017 surveys
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	S5B,SZN			P	x		x	
Ring-billed Gull	<i>Larus delawarensis</i>	S5B,SZN			XX			x	Observed in agricultural lands and flying overhead
Rock Dove	<i>Columba livia</i>	SE			H			x	
Savannah Sparrow	<i>Passerculus sandwichensis</i>	S5B,SZN			S	x		x	
Song Sparrow	<i>Melospiza melodia</i>	S5B,SZN			FY	x		x	
Swamp Sparrow	<i>Melospiza georgiana</i>	S5B,SZN				x			
Turkey Vulture	<i>Cathartes aura</i>	S5B			X			x	
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	S5B			S		x		
Yellow Warbler	<i>Dendroica petechia</i>	S5B,SZN			S	x			Only observed during 2017 surveys
Wild Turkey	<i>Meleagris gallopavo</i>	S5			X			x	
Amphians / Reptiles									
American Toad	<i>Anaxyrus americanus</i>	S5				x		x	
Western Chorus Frog	<i>Pseudacris maculata</i>	S3	THR SCH 1 THR			x			
Gray Treefrog	<i>Dryophytes versicolor</i>	S5				x			
Northern Leopard Frog	<i>Lithobates pipiens</i>	S5				x			
Snapping Turtle	<i>Chelydra serpentina</i>	S3	SC SCH 1 SC	SC		x			
Spring Peeper	<i>Pseudacris crucifer</i>	S5				x		x	Small wetland pocket at Glenelg Street on south side (Wildlife Unit 3); Spread throughout the unit (Wildlife Unit 1)
Wood Frog	<i>Lithobates sylvaticus</i>	S5				x		x	Small wetland pocket at Glenelg Street on south side (Wildlife Unit 3); Spread throughout the unit (Wildlife Unit 1)
Mammals / Other									
Chimney Crayfish	<i>Cambarus diogenes</i>	S4				x			Several Chimneys within the edge of fields
Eastern Chipmunk	<i>Tamias striatus</i>	S5				x	x	x	
Monarch	<i>Danaus plexippus</i>	S2N,S4B	END SCH 1 SC	SC		x		x	
Raccoon	<i>Procyon lotor</i>	S5				x	x	x	
Red Fox	<i>Vulpes vulpes</i>					x	x	x	
Two-spotted Bumble Bee	<i>Bombus bimaculatus</i>	S5				x		x	
White-tailed Deer	<i>Odocoileus virginianus</i>	S5				x	x	x	

Common Name	Scientific Name	SRank ¹	SARA ² COSEWIC Designation then Schedule	SARO ³	Highest Breeding Evidence Observed ⁴	SWT/SWD/MAM (Wildlife Unit 1)	Woodland (Wildlife Unit 2)	Agricultural Lands (Wildlife Unit 3)	Comments
Wild Boar	<i>Sus scrofa</i>	NA	NA	NA		x			Carcass

¹**S-Ranks** - Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

S1 Critically Imperiled—Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.

S2 Imperiled—Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

S3 Vulnerable—Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 Secure—Common, widespread, and abundant in the nation or state/province.

S#S# Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

SX Apparently extirpated from Ontario, with little likelihood of rediscovery. Typically not seen in the province for many decades, despite searches at known historic sites.

SNA (Formally SE) Exotic; not believed to be a native component of Ontario's flora.

²**SARA** - Species at Risk Act (S.C. 2002, c. 29) Act current to 2018-07-05 and last amended on 2018-05-30.

³**SARO** - ONTARIO REGULATION 230/08 under the Endangered Species Act, 2007 species at risk in Ontario list. Act current to 2018-08-01. COSEWIC (Committee on the Status of Endangered Wildlife in Canada)

EXT Extinct - A species that no longer exists.

EXP Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.

END Endangered - A species facing imminent extirpation or extinction.

THR Threatened - A species likely to become endangered if limiting factors are not reversed.

SC Special Concern (formerly vulnerable) - A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

NAR Not At Risk - A species that has been evaluated and found to be not at risk of extinction given the current circumstances.

DD Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of extinction.

* - Species on Schedule 1 of Species At Risk Act (SARA)

⁴**Highest Breeding Evidence Ontario Breeding Bird Atlas: Breeding Evidence Codes**

X - Present **XX** - Heard but not expected to be breeding (e.g. using habitat - foraging)

POSSIBLE

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

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

PROBABLE

P - Pair observed in suitable nesting habitat in nesting season

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

D - Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulations

V - Visiting probably nest site

A - Agitated behaviour or anxiety calls of an adult

B - Brood patch on adult female or cloacal protuberance on adult males

N - Nest building or excavation of nest hole

CONFIRMED

DD - Distraction display or injury feigning **CF** - Adult carrying food for young **NE** - Nest containing eggs

NY - Nest with young seen or heard **NU** - Used nest or egg shells found (occupied or laid within the period of the survey) **FY** - Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight

AE - Adult leaving or entering nest sites in circumstances indicating occupied nest **FS** - Adult carrying fecal sac

APPENDIX C
Representative Site Photographs

2358737 Ontario Inc.
Glenelg Residential Subdivision
SLR Project No.: 209.40385

Swamp Thicket (Wetland) and Woodland



Photograph 1. Overview wetland areas (SWT, view south west towards hazard lands also providing Spring Peeper habitat (November 14, 2017).



Photograph 2. Wetland Staking edge of feature (June 2018).



Photograph 3. Drainage feature within swamp thicket (April 2018).



Photograph 4. Chimney Crayfish within wetland along edge (June, 2018).



Photograph 5. Carcass of wild bore (exotic escape) found within SWT unit (April 2018).



Photograph 6. Cedar dominated Woodland abutting wetland features (June 2016).



SITE PHOTOGRAPHS

2358737 Ontario Inc
)Representative Site Photograph's
 1 of 3

Job No: 209.40385.0000

Agricultural and Cultural Meadow



Photograph 7. Overview of agricultural lands, view south west towards hazard lands (June 2016).



Photograph 8. Pasture - grass dominant species composition providing foraging opportunities for Eastern Meadowlark (June 2016).



Photograph 9. Debris pile within pasture (June 2016).



Photograph 10. Soy fields encompassing the majority of the property (June 2016).



Photograph 11. Plowed agricultural fields. View across fields east to west towards the wetland community (background) (June 7, 2017).



Photograph 12. Overview of site from Glenelg Street. Note Woodland and wetland in background and crop in foreground (September 2018).

Aquatic Features



Photograph 13. Tile outlet mostly northerly limits of the property (May 2018).



Photograph 14. Spring Freshet of drainage feature. Representative of how the channels are braided and difficult to define (April 2018).



Photograph 15. Channelized drainage within swamp thicket along west property limits (May, 2018).



Photograph 16. Beaver evidence in channelized drainage



Photograph 17. Channelized drain with isolated standing pools (July, 2018)



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