

**NATURAL HERITAGE  
ENVIRONMENTAL IMPACT  
ASSESSMENT**

**PREPARED FOR**

**South Saugeen Development Ltd:**

**Mount Forest-Cork Street Site Development**

**Part Lot 2, West Side Owen Sound Road,  
Geographic Township of Arthur, Town of Mount Forest  
Township of Wellington North  
County of Wellington**

**PREPARED BY**

**AWS**

**ENVIRONMENTAL CONSULTING INC.**

**Operating as Aquatic and Wildlife Services**

Phone: (519) 372-2303, Fax: (519) 372-1990, Email: [aws@gbtel.ca](mailto:aws@gbtel.ca)  
JOHN MORTON, 242090 Conc. Rd 3, R. # 1, Shallow Lake, Ontario, N0H 2K0

**December, 2017**

## **Table of Contents**

1	Executive Summary .....	2
2	Introduction .....	2
3	Study Works .....	3
3.1	Background Review .....	3
3.2	Field Study Methodology .....	3
3.3	Field Survey Dates .....	5
4	Vegetation Community Characterization .....	6

### **Significant Feature Analysis**

5	Habitat of Endangered and Threatened Species.....	7
6	Fish Habitat .....	8
7	Significant Wetlands .....	9
8	Significant Woodlands .....	9
9	Significant Valleylands .....	10
10	Significant Areas of Natural and Scientific Interest (A.N.S.I.) .....	11
11	Significant Wildlife Habitat.....	12
11.1	Seasonal Concentration Areas of Animals .....	12
11.2	Rare Vegetation Communities .....	14
11.3	Specialized Habitat for Wildlife.....	15
11.4	Habitat for Species of Conservation Concern.....	17
11.5	Animal Movement Corridors.....	18
11.6	Exceptions for Ecoregion 6E .....	19
12	Significant Feature Analysis Summary.....	20

### **Impact Assessment**

13	Fish Habitat .....	21
13.1	Site Characterization .....	21
13.2	Impact Assessment.....	21
14	Significant Woodland .....	22
14.1	Vegetation Community Characterization .....	22
14.2	Impact Assessment.....	23
15	Mitigation .....	23
16	Conclusions .....	24
17	References .....	25
18	Figures .....	26

## 1 Executive Summary

South Saugeen Developments Ltd. is exploring Site Development options for its land holdings within the Town of Mount Forest, presently referred to as 'Cork Street Development', being within Part Lot 2, West Side of Owen Sound Road, Geographic Township of Arthur, Township of Wellington North, Wellington County. Within the context of this Natural Heritage Environmental Impact Assessment (EIA) report, the proposed Site Development Lands are referred to as the '**Study Lands**', with its 120m adjacent lands referred to as the '**Site Lands**' (which includes the Study Lands).

The EIA field investigations and assessment of natural heritage features and ecological functions were carried out by AWS Environmental Consulting Ltd. (AWS) from late April through to late August 2017. This technical reporting has demonstrated and concluded that with appropriate mitigation through buffer zone establishment, no development area and constrained vegetation clearing, no negative impacts are anticipated to the identified significant natural heritage features or ecological functions within the Study Lands or its adjacent lands.

## 2 Introduction

This Environmental Impact Assessment (EIA) has been undertaken to address the Endangered Species Act, Natural Heritage Provincial Policy Statement 2.1 other applicable Acts and Legislation along with the County of Wellington Official Plan and Township of Wellington North Zoning By-Law. This technical reporting will follow the Provincial Natural Heritage Reference Manual (NHRM) of March 2010 for natural heritage features and ecological function identification and impact assessment format.

The EIA technical report shall address the Natural Heritage Features, as defined by the Provincial Policy Statement 2.1, with a review of available literature reports, data files, feature maps etc. currently available through Municipal, Provincial and Federal agencies augmented with field survey/inventory works for the Study Lands and the 120m adjacent review lands (as applicable).

### 3 Study Works

#### 3.1 Background Review

The general property location has been shown on Figure No. 1, with the Study Lands and Site Lands delineated on Figure No. 2. A broader landscape review extending 5km's from the Study Lands for historical data records was also undertaken as part of the literature background review for historical significant Flora and Fauna records, provided under Appendix 1. This adjacent land and broader landscape review and data search was conducted to aid in the identification of Natural Heritage Features and historical occurrence records for Flora and Fauna within and surrounding the Study Lands for candidate on-site habitat use. This background review was utilized to augment field data collection, with a full listing of reports / documents reviewed or cited provided within the reference section.

- Natural Heritage Information Center (NHIC) - Land Information Ontario web site of the Ontario Ministry of Natural Resources and Forestry (MNR) for significant flora and fauna records.
- Wellington County Official Plan and schedule mapping.
- Owen Sound Area Office of Ministry of Natural resources and Forestry (MNR) South Saugeen River fisheries and wildlife files.

#### 3.2 Field Study Methodology

The field '**Study Lands**' are delineated on Figure No. 2. Additional data record searches, literature reviews and air photography interpretation encompassed the Study Lands plus its 120m Adjacent Lands (Site Lands) plus historical records search out to 5km from the Study Lands (see Appendix 1).

Field investigations and data collection for this EIA reporting were carried out from late April to mid-August 2017. Details of survey focus works and dates are provided in Table No. 1, along with weather conditions at the time of each survey start up.

- A qualified two-person team comprised of John Morton and Judith Jones from AWS Environmental Consulting Inc. completed natural environment field inventory and assessment works within the Study Lands.

**Vascular Plant Surveys** were conducted during the growing season (spring and summer) of 2017, with a full species listing, ranking, status levels and Floristic Quality Scores provided within Appendix 2. Given the small and limited extent of remnant natural environment within the Study Lands Survey field survey methodology followed a 'random' coverage approach within all habitat types, vegetation communities, woodland edges, hedgerows, riparian areas and fence lines.

**General Fauna Surveys** within the Study Lands included specific searches and/or investigation for amphibians, breeding birds, hibernation emergence and gestation activity for snakes, general searches for mammals and movement corridor functions. A full summary list of all recorded fauna species over the study period has been provided under Appendix 3 with current rankings, status levels and highest bird breeding codes observed.

**Bird Surveys** for the Study Lands followed standardized search methods:

- a) Monitoring activity included a 'Point Count' methodology for breeding activity in accordance to Bird Studies Canada for Woodland habitat. Point Count Locations were established to cover all habitat types within the Subject Lands, with no point count location closer than 100m (limited overlapping of potential territories). Occurrences were recorded through both sightings and calling for a total of 5-10 minutes at each point count location in the early morning hours (dusk to 10:40am). Point Count undertaking times and location mapping have been provided within Appendix 2.
- b) Additional bird observations of feeding adults and fledglings during summer site visits were also recorded and listed under Appendix 2 as observations outside the breeding season.

**Herpetofaunal Surveys** were conducted throughout the Study Lands but were focused within suitable habitat areas; woodland environment, riparian zone, rock piles and vegetation transition zones.

- a) Amphibian-Frog Calling Survey followed Ontario Marsh Monitoring protocol with one evening survey date in the early spring breeding period and one survey date in the mid-spring breeding period. No suitable habitat for late spring breeding activity was identified on-site.
- b) Amphibian-Salamander and Frog breeding activity with active searches for egg masses was undertaken throughout the Study Lands from late April through to June.
- c) Reptiles- No suitable habitat was identified for Turtle egg laying or overwintering or summer foraging/basking.
- d) Reptiles-Snake activity was actively searched for during the late spring hibernation emergence period and summer gestation period within suitable habitat areas.

**Mammal** sightings or observations of habitat use (tracks, scat) were recorded during all other flora and fauna investigation work during site visits in 2014. Specific searches plus random coverage across the Study Lands focused on mature forests, wetlands, riparian zone, downed woody debris, game trails and habitat/vegetation transition zones.

**Fish Community** assessment was undertaken through visual inspection within the Study Lands water course during the spring season high flow period and summer base flow period.

### 3.3 Field Survey Dates

Table No. 1: Field Survey Dates and Focus of Works

<b>Date</b>	<b>Survey Time &amp; Duration</b>	<b>Weather Conditions (at start time)</b>	<b>Survey Focus</b>
April 24, 2017	1700 to 1900 For 2.0 hrs	Wind Speed = 12-19 km/hr Air Temp. = 12.0 C Precipitation = 0, Cloud Cover = 75%	Ephemeral pond investigations, Hydrology-peak flows. Reptiles hibernation emergence, Cavity Trees, General Fauna
April 24, 2017	2130 to 2145 For 0.25 hrs	Wind Speed = 6-11 km/hr Air Temp. = 10.0 C Precipitation = 0, Cloud Cover = 60%	First Anuran night calling survey, Evening Bird and Bat activity
May 26, 2017	2215 to 2230 For 0.25 hrs	Wind Speed = 3-6 km/hr Air Temp. = 13.0 C Precipitation = 0, Cloud Cover = 50%	Second Anuran night calling survey
May 31, 2017	0830 to 1030 For 2.0 hrs	Wind Speed = 11-19 km/hr Air Temp. = 15.0 C Precipitation = 0, Cloud Cover = 25%	First breeding Bird survey General Fauna
June 13, 2017	0600 to 0800 2-Person Crew For 4.0 hours	Wind Speed = 6-11 km/hr Air Temp. = 18.0 C Precipitation = 0, Cloud Cover = 90%	Second breeding Bird survey, Spring flora inventory General Fauna
July 13, 2017	0830 to 0930 For 1.0hrs	Wind Speed = 12-19 km/hr Air Temp. = 19.0 C Precipitation = 0, Cloud Cover = 30%	Vegetation community/ELC, Snake gestation activity, Hydrology, General Fauna
August 10, 2017	1530 to 1630 For 1.0hrs	Wind Speed = 3-5 km/hr Air Temp. = 27.0 C Precipitation = 0, Cloud Cover = 60%	Snake gestation activity, Hydrology, Fish Habitat Summer flora inventory, General Fauna

Total field survey search effort provided 10.5 hours over seven site visits, during the spring and summer growing seasons of 2017.

## 4 Vegetation Community Characterization

Vegetation community boundaries within the Study Lands and its 120m adjacent lands are depicted on Figure No.7. They were mapped and defined in the field based upon the 'Ecological Land Classification (ELC) for Southern Ontario, First Approximation', with ELC types, ranking and characterization provided in the below table.

Table No. 2: Vegetation Communities Types - ELC Codes

Vegetation Community Number	ELC Code	Type	Description	Provincial Designation
1	FOD6-5	Fresh-Moist Sugar Maple-Hardwood Forest	Mid-maturity aged stand, Averages for stand: 16m in height, Basal Area=15 sq.m/ha, Understory regeneration 30%, Ground cover 20%, Site Disturbances	S5
2	CUM1-1	Dry-Moist Old Field meadow	Disturbed lands, primarily scattered weeds with pockets of grasses, few scattered tall shrubs	S5
3	None: HH	Hardwood Hedgerow	Mature hardwoods, mix of Sugar Maple, Black Cherry and Ash	None
4	None: AG	Active Agricultural Lands	Cash crop fields, planted in soy beans in 2017	None
5	CUP3-2	White Pine Conifer Plantation	Mature stand averaging 22m in height, mix of White Pine, red Pine, White Cedar. A frequently used recreational trail is adjacent to Study Land west boundary/property line, just inside this forest stands tree line.	S5
6	SWM2-1	Red Maple-Conifer Mineral mixed Swamp	Seasonally flooded wetland with a water course bisecting through stand, pockets of standing dead trees.	S5

## **Significant Feature Analysis**

### **5 Habitat of Endangered and Threatened Species**

A literature search for historic records of Endangered and Threatened species has been undertaken for the surrounding landscape extending 5 km's from the Study Lands utilizing the Species At Risk in Ontario (SARO) listings maintained by the Ontario Ministry of Natural Resources and Forestry (MNRF); and the national lists maintained by Environment Canada (i.e. Committee on the Status of Endangered Wildlife in Canada (COSEWIC). As input to this work and in conjunction with field investigations, a review was undertaken of the Natural Heritage Information Centre (NHIC) web site, provided under Appendix 1, along with published resources of the MNRF.

Through this literature review of historical records, three fauna species currently listed under the Endangered Species Act, 2007 (ESA) were identified within the search: Bobolink, Eastern Meadowlark and Massasauga Rattlesnake.

Bobolink and Eastern Meadowlark are both grassland oriented bird species, provincial habitat descriptions and on-site habitat characterization are provided below

- Bobolink
  - *Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland typically > 30 ha*
- Eastern Meadowlark
  - *Open, grassy meadows, farmlands, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent open grassy areas > 10 ha in size*

The agricultural fields (vegetation community No. 4) within the Study Lands is intensively managed, with annual tilling, herbicide spraying and have been in rotation row crop production with soybeans in 2017. Vegetation community No. 2 does have scattered pockets of grasslands, but given the site disturbances, lack of ground duff layer and fragmentation of parcels being <2ha each, habitat use was anticipated to be negligible. Breeding bird survey works of 2017 confirmed that neither of these bird species were present within the Study Lands. Though a third survey site visit is required under SAR Grassland Birds protocol, given that there was no suitable habitat within the Study Lands, the third monitoring site visit for 'grassland birds' was deemed impractical and not necessary for impact assessment review.

The third historical fauna record was for Massasauga, with the last recorded sighting in the Mount Forest area 39 years ago (1978), as listed on Appendix 1 from the MNRF. Appendix 5 provides the current accepted provincial habitat range maps for Massasauga in Ontario, with the southern limit of the Bruce Peninsula population situated approximately 100km's north of the Study Lands.

This author has extensive experience (32+ years) with Massasauga surveys and habitat delineation within the Bruce Peninsula range (see Appendix qualifications), including approved field training under Parks Canada staff for massasauga habitat delineation. Site investigations of 2017 within the Study Lands did not identify any suitable significant habitat for massasauga. Therefore, based on this background review and on-site investigations, it can be concluded that the Study Lands do not support or provide habitat for this Threatened species.

The Provincial Policy Statement (PPS) section 2.1.7 states:

*Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.*

The NHIC provides conditional wording for historical records, stating:

*Absence of information for a specific location does not mean there are no natural areas, provincially tracked species, plant communities or wildlife concentration areas at that location. It means that on the date the MNR created the dataset there was no information for that location. These data are not a substitute for site visits.*

As such, detailed site investigations for the Study Lands were undertaken, for flora and fauna that are currently listed under the Endangered Species Act, 2007. Appendix 2 and 3 provide an inventory of species listing respectively, with no species identified that have an Endangered or Threatened status recorded during on-site investigation of 2017.

Through the background analysis of historical data and on-site investigations, it has been demonstrated that no Species-At-Risk (SAR) occur within the Study Lands or noted within the adjacent lands. Thus it can be concluded that site development would be in compliance with the Endangered Species Act 2007, the PPS 2.1.7 and the County of Wellington Official Plan policy 5.4.2.

## **6 Fish Habitat**

A small unnamed watercourse bisects the southeast corner of the Study Lands as shown on Ontario Base Mapping and evident on air photo imagery. This watercourse commences in the Town of Mount Forest in an urban setting, approximately 100m east of the Study Lands. Then flows in a generally south orientation until reaching the South Saugeen River situated approximately 150m south of the Study Lands, having a watercourse length of approximately 700m.

A background literature review could not find any records for this watercourse. On-site investigations of 2017 visually confirmed a small resident population of common Cyprinidae family (minnows) species within this water course.

With Fish Habitat confirmed within the Study Lands, further review and impact assessment is deemed required and provided under section 13, to address the Federal Fisheries Act, the PPS section 2.1.6 and 2.1.8, the Wellington County Official Plan 5.5 and 5.6 for 'Fish'.

## 7 Significant Wetlands

A review of Provincially Significant Wetlands (PSW) was undertaken and provided on Figure No. 3, sourced through the MNR web site mapping. This provincial mapping demonstrates that no evaluated significant wetland features occur within the Site Lands.

The Provincial Policy Statement (PPS) section 2.1.4 states:

*Development and site alteration shall not be permitted in significant wetlands in Ecoregions 5E, 6E and 7E and significant coastal wetlands.*

The PPS Natural Heritage section 2.1.8 states:

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

The provincial Natural Heritage Reference Manual (NHRM) section 6.4 for Significant Wetlands - Adjacent Lands in part states:

*The Province recommends that adjacent lands are those lands within 120 metres of individual significant wetlands or significant coastal wetlands....*

The Study Lands are within Ecoregion 6E, thus significant wetland provincial policies relating to Ecoregion 6E are applicable.

With no confirmed PSW within the Site Lands, it can be concluded that site development within the Study Lands would be in compliance with the PPS 2.1.4 and 2.1.8 for adjacent lands, and applicable policies of the Wellington County Official Plan. As such, no further review or impact assessment is deemed required for significant wetlands.

## 8 Significant Woodlands

The Wellington County Official Plan for Greenlands, policy 5.5.4 in part states:

*Woodlands over 10 hectares in area are considered to be significant by the County and are included in the Greenlands system.*

Figure No. 4, Official Plan mapping for Mount Forest shows that no Greenlands designation occurs within the Study Lands, though said designation is just to the south, within the Site Lands (adjacent lands) and incorporates significant woodlands in this designation. The Wellington County web site also maps environmental constraint features, see Figure 5, which similarly shows that the woodland environment within the Study Lands is not deemed to be 'significant'; however the woodland abutting along the Study Lands western perimeter is shown as a 'significant

wooded area', but this wooded area is not part of the Greenlands system, but shall be considered to be significant woodland within this EIA.

The PPS Natural Heritage policy 2.1.5 (b) states:

*Development and site alteration shall not be permitted in significant woodlands in Ecoregions 6E and 7E unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions*

The PPS Natural Heritage section 2.1.8 states:

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

The NHRM section 7.4 for Significant Woodlands-Adjacent Lands in part states:

*The Province recommends that the adjacent lands are those lands within 120 metres of a significant woodland.*

The County of Wellington Official Plan policy 5.6.3 for Adjacent Lands states:

- a) *Lands within 120 metres of .....significant woodlands*
- b) *Lands within 50 metres of Earth Science ANSI*
- c) *Lands within 30 metres of all other Core Greenlands and Greenland areas.*

The Study Lands have a separation distance >30m to the Greenland designation, but are within the 120m adjacent lands to Significant Woodlands. As such, further review and impact assessment is required and provided under section 14, to demonstrate compliance with the PPS 2.1.8 (adjacent lands) and the County Official Plan policy 5.6.3 (a).

## **9 Significant Valleylands**

The Wellington County Official Plan for Core Greenlands, policy 5.5.3 in part states:

*Streams and valleylands are included in the Greenlands system.*

The PPS Natural Heritage policy 2.1.5 (c) states:

*Development and site alteration shall not be permitted in significant valleylands in Ecoregions 6E and 7E unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions*

Figure No. 5 demonstrates that no Greenland designation occurs within the Study Lands and no separate feature delineation for valleylands is available under Figure No. 5 Wellington County environmental constraint mapping. Though the South Saugeen River valleyland could be considered a candidate significant valleyland feature, the Study Lands are beyond the South Saugeen River floodplain area with no site development or terrain alteration proposed within the

valleyland-flood plain area. The Conservation Authority Regulatory Lands mapping has been provided on Figure No. 6 in relation to the Study Lands. This mapping demonstrates that the primary South Saugeen River flood plain and valleyland regulatory lands are beyond the Study Lands. A small 'finger' of Regulatory lands does occur along the Study Lands south boundary area, but this specific area is associated with the unnamed water course, not considered to be part of the South Saugeen River valleyland-terrain feature (as based on elevation contours).

Site development within the Study Lands is within the Urban settlement of Mount Forest, with no significant terrain alterations proposed or alterations to the valleyland area or Greenland designation lands or its adjacent lands, no impacts to terrain features associated with the South Saugeen River valleyland (be it significant or not) shall occur from site development within the Study Lands.

With no confirmed Significant Valleyland feature within the Study Lands, no potential for off-site terrain or ecological impacts to candidate valleylands and with the Study lands beyond the Greenlands 30 m adjacent lands, no further review is deemed required to demonstrate compliance with the PPS 2.1.5 (c) or 2.1.8 (adjacent lands) or the County Official Plan policy 5.6.3. Any proposed site development changes to or along the unnamed water course within the C.A. regulatory lands for the Study Lands, shall be screened for potential off-site negative impacts by the Saugeen Valley Conservation Authority.

## **10 Significant Areas of Natural and Scientific Interest (A.N.S.I.)**

A review of significant ANSI's was undertaken and provided on Figure No. 3, sourced through the MNRF web site mapping. This provincial mapping demonstrates that **no** ANSI designation occurs within the Site Lands. Similarly, Figure No. 5 provides environmental constraint mapping through the Wellington County web site mapping which shows **no** ANSI designation within 120m to the Study Lands.

The Provincial Policy Statement (PPS) section 2.1.5 (e) states:

*Development and site alteration shall not be permitted in significant areas of natural and scientific interest unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

With no ANSI feature confirmed within the Study Lands, it can be concluded this site development proposal is in compliance with the PPS 2.1.5 (e).

The Provincial NHRM, 2010 under section 10.4 for Significant ANSI's states that the Adjacent Land Width to earth science ANSI's is 50m while the Adjacent Lands Width to life science ANSI's is 120m.

The PPS Natural Heritage section 2.1.8 states:

*Development and site alteration shall not be permitted on adjacent lands (120m) to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

With no ANSI features confirmed within the Site Lands, site development would also be in compliance with the PPS section 2.1.8 for adjacent lands. Similarly with no Greenlands designation which includes ANSI features, within the Study Lands, site development will be in compliance with the Wellington County Official Plan 5.5.2 and 5.6. Therefore, no further review or impact assessment is warranted for this feature.

## 11 Significant Wildlife Habitat

The Wellington County Official Plan policy 5.5.1 in part states:

*Fish, wildlife and plant habitat are included in the Greenlands System, often as part of other defined natural heritage features. Development and site alteration will not be allowed in significant wildlife or plant habitat unless it has been demonstrated that there will be no negative impacts on the habitat or its ecological functions...*

To aid in the determination of 'significant habitat' the Ontario Ministry of Natural Resources and Forestry published in January 2015 "Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E" as a supplement document to the 2000 Significant Wildlife Habitat Technical Guide (SWHTG). This supporting document provides a listing of candidate and criteria or threshold levels to confirm the presence of significant wildlife habitat within Ecoregion 6E. Some historical Provincial MNR inventory and wildlife assessment works within Wellington County has been sourced to aid in determination of confirmed SWH. Additionally EIA field inventory works carried out over the Study Lands will augment this historical data to aid in the determination of significance for each wildlife habitat sub-component.

Provided below is a review of Ecoregion 6E criteria for candidate SWH, a review of threshold levels and confirmed SWH for the Study Lands. This review follows the Natural Heritage Reference Manual, 2010 (NHRM), flow chart of Figure No. 9-1 for the identification and confirming Significant Wildlife Habitat.

### 11.1 Seasonal Concentration Areas of Animals

A summary review of Table 1.1 Criterion is provided below:

- Waterfowl Stopover and staging (Terrestrial)
  - No criteria waterfowl species were observed in 2017.
  - ELC criteria code CUM1 present but no evidence of annual spring flooding, no suitable habitat identified.
  - No confirmed SWH.
- Waterfowl Stopover and staging (Aquatic)
  - No criteria waterfowl species were observed in 2017.
  - No ELC criteria codes are present and no suitable habitat identified.
  - No Confirmed SWH.
- Shorebird Migratory Stopover
  - No criteria shorebird species were observed in 2017.
  - No ELC criteria codes present and no suitable habitat identified.

- No confirmed SWH.
- Raptor Wintering Area
  - No criteria raptor species were observed in 2017.
  - ELC criteria code FOD and CUM are present, however criteria size of >20ha for forest and upland not met.
  - Though no winter survey works undertaken, given this site is adjacent to a residential and urban development area, ecological functioning habitat was considered to be negligible for over wintering activity.
  - No confirmed SWH.
- Bat Hibernacula
  - No criteria bat species were observed in 2017.
  - No ELC criteria codes present.
  - No historical documentation of bat hibernation activity, no suitable habitat was identifiable.
  - No confirmed SWH.
- Bat Maternity Colonies
  - No criteria bat species were observed in 2017.
  - ELC criteria codes: FOD and SWM are present. SWM is situated 80m west of the Study Lands, with no impacts from site development anticipated. The FOD community type is located within the Study Lands however, no trees > 25cm dbh with cavity or snags were identified. No evidence of colony flights during night amphibian calling surveys.
  - No confirmed SWH.
- Turtle Wintering Areas
  - No criteria turtle species were observed in 2017.
  - ELC criteria code: SW is present however; it is situated 80m west of the Study Lands, with no impacts from site development anticipated. No suitable ecological functioning habitat for overwintering was identifiable within the Study Lands.
  - No confirmed SWH.
- Reptile Hibernaculum
  - One criteria snake species was observed: Eastern Gartersnake within the Study Lands during the summer period 2017 investigations, field survey work covered the spring 'emergence' activity period, with no snake activity observed.
  - ELC criteria code: FOD and riparian zone habitat was present however; no suitable Hibernaculum habitat was identified or evidence of activity.
  - No confirmed SWH.
- Colonially-Nesting Bird Breeding Habitat: Bank and Cliff
  - No criteria bird species were observed in 2017.
  - ELC criteria code is present: CUM1 but no eroding or exposed natural soil banks, no suitable nesting habitat identified.
  - No confirmed SWH.

- Colonially-Nesting Bird Breeding Habitat: Tree/Shrub
  - No criteria bird species were observed in 2017.
  - ELC criteria code; SWM is present however; it is situated 80m west of the Study Lands, with no impacts from site development anticipated. No suitable ecological functioning habitat for colonial-nesting birds in trees/shrubs was identifiable within the Study Lands.
  - No confirmed SWH.
  
- Colonially-Nesting Bird Breeding Habitat: Ground
  - No criteria bird species were observed in 2017.
  - ELC criteria code; CUM is present but no nesting colony activity identified.
  - No confirmed SWH.
  
- Migratory Butterfly Stopover Areas
  - No criteria butterfly species were observed in 2017.
  - Forest ELC criteria code FOD and Field ELC criteria code CUM are present however; Study Lands are not located within the criteria area of 5km within Lake Ontario.
  - No confirmed SWH.
  
- Landbird Migratory Stopover Areas
  - Several migratory songbird species identified within the Study Lands during 2017 site investigations.
  - ELC criteria codes are present: FOD and SWM however; Study lands are not located within the criteria area of 5km within Lake Ontario.
  - No confirmed SWH.
  
- Deer Yarding Areas
  - MNRF to determine this habitat, with no habitat identified within the Site Lands.
  - ELC criteria code types are present but no on-site past evidence of activity identified.
  - No confirmed SWH.
  
- Deer Winter Congregation Areas
  - Within northern Wellington County, deer are typically constrained by snow depths thus 'yarding habitat used', congregation areas are typically associated with Carolina habitat regions, not a SWH function in this portion of the County.
  - No confirmed SWH.

## 11.2 Rare Vegetation Communities

A summary review of Table 1.2.1 Criterion is provided below:

- Cliffs and Talus Slopes
  - No ELC criteria code types identifiable within the Site Lands.
  - No confirmed SWH.

- Sand Barren
  - No ELC criteria code types identifiable within the Site Lands.
  - No confirmed SWH.
  
- Alvar
  - No ELC criteria code types identifiable within the Site Lands No confirmed SWH.
  - No confirmed SWH.
  
- Old Growth Forest
  - ELC criteria code types: FOD, FOC and SWM are present.
  - Provincial Habitat description criteria for 'Old Growth Forest' community is not identifiable (tree sizes, density, etc) within the Study Lands or visible from property lines/road sides of the adjacent lands
  - No confirmed SWH.
  
- Savannah
  - No ELC criteria code types identifiable within the Site Lands.
  - No confirmed SWH.
  
- Tallgrass Prairie
  - No ELC criteria code types identifiable within the Site Lands.
  - No confirmed SWH.
  
- Other Rare Vegetation Communities
  - No identified vegetation communities with an S1, S2 or S3 ranking present within the Site Lands, see section 4, Table 2.
  - No confirmed SWH.

### **11.3 Specialized Habitat for Wildlife**

A summary review of Table 1.2.2 Criterion is provided below:

- Waterfowl Nesting Area
  - No criteria species were observed in 2017.
  - No ELC criteria codes identified within the Site Lands.
  - Criteria thresholds not met for species diversity, numbers or habitat.
  - No confirmed SWH.
  
- Bald Eagle and Osprey Nesting, Foraging and Perching Habitat
  - No criteria species were observed in 2017.
  - ELC criteria codes: FOD and SWM are present but no large water body present within the Site Lands.
  - No evidence of current or historical nesting activity within the Study Lands or surrounding adjacent lands.
  - Criteria thresholds not met for active use of habitat.
  - No confirmed SWH.

- Woodland Raptor Nesting Habitat
  - No criteria species were observed in 2017.
  - ELC criteria codes: FOD, SWM and CUP3 however; woodland habitat is below the criteria threshold level of >30ha.
  - Criteria thresholds for species, numbers and habitat size not met.
  - No confirmed SWH.
  
- Turtle Nesting Areas
  - No criteria species were observed in 2017.
  - No ELC criteria codes are present.
  - Criteria thresholds for species, numbers and habitat type not met
  - No confirmed SWH.
  
- Seeps and Springs
  - Criteria fauna species were observed in 2017.
  - One groundwater upwelling feature-seeps was identified within the Study Lands.
  - Criteria threshold for significance requires 2 or more seeps/springs, thus numbers for significance determination not met.
  - No confirmed SWH.
  
- Amphibian Breeding Habitat (Woodland)
  - Criteria species: Gray Treefrog was observed in 2017.
  - ELC criteria codes: FOD and SWM are present.
  - Criteria for individual numbers (threshold level is >20 adults recorded) not met and, see Appendix 3 Anuran Calling Survey.
  - No confirmed SWH.
  
- Amphibian Breeding Habitat (Wetlands)
  - Two criteria species: Gray Treefrog and Northern Leopard Frog were recorded in 2017.
  - ELC criteria code: SW is present however; it is situated 80m west of the Study Lands, with no impacts from site development anticipated. Along the Study Lands central-eastern perimeter, the portion of area shown on Figure No. 7 as 'cleared lands in 2017' was a former swamp habitat with seasonal surface water flooding and being the primary amphibian breeding habitat for this specific area. Anuran calling activity was high, with egg masses observed in the late spring of 2017, however; said lands had received approval for separate severance and approved land clearing for site development. Within the Study Lands, there was no evidence of ephemeral amphibian breeding pools within the woodlands.
  - Criteria for individual numbers (threshold level is >20 adults recorded) not met and no observed evidence of egg masses through detailed survey works within the Study Lands.
  - No confirmed SWH.
  
- Woodland Area-Sensitive Bird Breeding Habitat
  - No criteria species were observed in 2017.
  - ELC criteria codes: FOD and SWM are present.
  - No Interior Forest Habitat identified within the Site Lands.
  - Criteria thresholds for species diversity or numbers not met.
  - No confirmed SWH.

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

A summary review of the Table 1.3 Criterion is provided below:

- Marsh Breeding Bird Habitat
  - No criteria species were observed in 2017.
  - No ELC criteria codes are identifiable.
  - Criteria thresholds for species diversity or numbers not met.
  - No confirmed SWH.
  
- Open Country Bird Breeding Habitat
  - No criteria species were observed in 2017.
  - ELC criteria code: CUM is present however; well below the required threshold size of >30ha.
  - Criteria thresholds for species diversity, numbers or habitat size not met.
  - No confirmed SWH.
  
- Shrub/Early Successional Bird Breeding Habitat
  - No criteria indicator species or common species were observed in 2017.
  - No ELC criteria codes present.
  - Criteria thresholds for species diversity, numbers or habitat not met.
  - No confirmed SWH.
  
- Terrestrial Crayfish
  - No criteria species or evidence of (chimney's) were observed in 2017.
  - ELC criteria code: SWM is present are present however; it is situated 80m west of the Study Lands, with no impacts from site development anticipated.
  - Criteria threshold for species, numbers or habitat not met.
  - No confirmed SWH.
  
- Special Concern and Rare Wildlife Species
  - No flora species have been identified within the Study Lands which have a Special Concern or Provincial Rare status (see Appendix 2).
  - No fauna species have been identified within the Study Lands which have a Special Concern or Provincial Rare status (see Appendix 3)
  - Note: Flora or Fauna species with a Locally Rare status are not criteria aspects for the determination of Significant Wildlife Habitat.
  - Historical data (Appendix 1) had two fauna and two flora species listed, but none were observed during the 2017 detailed site investigations of the Study Lands. A review of Provincial habitat description and on-site habitat characterization for each are provided below.
    - Snapping Turtle
      - Provincial habitat description: *permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water; home range size ~28 ha*

- On-site habitat: No suitable significant habitat within the Study Lands. The South Saugeen River to the south provides suitable habitat. Due to significant terrain features the noted on-site water course linking the Study Lands to the South Saugeen River is a significant barrier and limiting factor for turtle movement to the Study Lands via this unnamed water course.
- Milksnake
  - Provincial habitat description: *farmlands, meadows, hardwood or aspen stands; pine forest with brushy or woody cover; river bottoms or bog woods; hides under logs, stones, or boards or in outbuildings; often uses communal nest sites*
  - On-Site habitat Characterization: Some limited habitat along woodland edge for stone piles and vegetation community No.2, but no significant activity observed during the hibernation or gestation period.
- Scarlet Beebalm
  - Provincial habitat description: *moist woods, swampy thickets and roadsides*
  - On-Site habitat characterization: Suitable habitat within vegetation community No. 2 and along road side however; not identified in 2017 through intensive on-site investigation of 2017.
- Hill's Pondweed
  - Provincial habitat description: *Hill's Pondweed is found in slow-moving streams, ditches, ponds, lakes and wetlands. It grows in clear, cold alkaline waters. In Ontario, it has been recorded at 26 sites in the Bruce Peninsula, Manitoulin Island, Wellington County and Peel Region. Only about 14 of these are presumed to still support Hill's Pondweed.*
  - On-Site habitat characterization: No suitable habitat within the Site Lands, anticipated recording was for the South Saugeen River system.
- No confirmed SWH.

## 11.5 Animal Movement Corridors

A summary review of the Table 1.4.1 Criterion is provided below:

- Amphibian Movement Corridors
  - No confirmed significant breeding habitat through Table 1.2.2 review (section 11.3), thus no corridor delineation or assessment is required as per guidelines.
  - No confirmed SWH.

- Deer Movement Corridors
  - No deer wintering habitat was confirmed through Table 1.1 analysis (section 11.1), thus no corridor delineation or assessment is required as per guidelines.
  - No confirmed SWH.

## 11.6 Exceptions for Ecoregion 6E

A summary review of the Criterion Table 1.5.1 is provided below:

- Mast Producing Areas
  - Candidate areas are only within Ecodistrict 6E-14, the Upper Bruce Peninsula. The subject Study Lands are within Ecodistrict 6E-5.
  - No confirmed SWH.
  
- Sharp-tailed Grouse
  - Candidate areas are only within for Ecodistrict 6E-17, Manitoulin Island. The subject Study Lands are within Ecodistrict 6E-5.
  - No confirmed SWH.

In summary for this review of Ecoregion 6E criterion schedule, **no** significant wildlife habitat sub-component has been confirmed within the Study Lands or identifiable within the 120m adjacent lands.

The Natural Heritage Provincial Policy 2.1.5 (d) states:

*Development and site alteration shall not be permitted in significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

Natural Heritage Provincial Policy 2.1.8 regarding the adjacent lands (120m) for significant wildlife habitat states:

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

With **no** Significant Wildlife Habitat confirmed within the Study Lands or identifiable within the 120m adjacent lands, it can be concluded that Site Development would be in compliance with the PPS 2.1.5 (d) and 2.1.8 and significant wildlife habitat aspects of the Wellington County Official Plan policy 5.5. Therefore, no further review is deemed required for this natural heritage feature.

## 12 Significant Feature Analysis Summary

Through the significant feature analysis, the following Natural Heritage features and/or related ecological functions have been identified within the Site Lands:

- Fish Habitat
  - Unnamed water course bisecting the Study Lands southeast corner.
  
- Significant Woodlands
  - The Study Lands are situated within the 'adjacent lands' to this feature near the east and south Study Lands boundary. No Significant woodland feature is within the Study Lands.

In addition to the two identified natural heritage features, the on-site flora inventory works of 2017 found Pale Sedge (*Carex pallescens*) within the Study Lands, see Appendix 3 listing. This vascular plant has a status of locally rare for Wellington County, colony location mapping for the Study Lands is provided on Figure No. 8. Under the new provincial SWH Ecoregion assessment, locally significant flora/fauna are not deemed to be criteria for significance determination (reporting section 11.4). However; this locally rare vascular plant does add to the genetic diversity of the surrounding natural environment and merits development and planning concern.

The County of Wellington Official Plan goals and commitments to the future under policy 2.2.15 in part states:

*Protect, restore or, where feasible, improve the diversity, connectivity and ecological functions of natural heritage features...*

In consultation with the applicant, given this species colony location the applicant has agreed to a minor buffer zone expansion established for other adjacent features, in this specific area, as shown on Figure No. 9. This expanded buffer zone area includes this locally rare sedge colony and provides on-site protection from future site development and of sufficient separation distance to maintain no negative impacts from adjacent development.

Further review of the aforementioned two confirmed natural heritage features through characterization, impact assessment and recommended mitigation measures in relation to future site development has been provided within the following Impact Assessment reporting component.

# **Impact Assessment**

## **13 Fish Habitat**

### **13.1 Site Characterization**

On-site investigation in 2017 for the unnamed water course bisecting the Study Lands southeast corner, included observations during the spring freshet run-off period and the base flow summer season period. Upstream of Cork Street, this water course has been altered and portions converted into a buried pipe system. Within the Study Lands, downstream of Cork Street for approximately 90m, this upper portion section of the watercourse has undergone past site alterations of ditching, channelization and bank side tree removal, with a designated drainage easement here (see Appendix 4 Plan of Survey). Downstream of this drainage easement the water course is in a natural channel condition, traversing south through a small hardwood woodlot, part of vegetation community No. 1, until reaching Martin Street culvert crossing. The downstream end of this culvert is perched, negating any upstream fish movement.

Within the natural channel section, it averaged 30cm in width with base flow water depths averaging 10cm, with permanent flows observed throughout 2017. Average channel substrate was 70% silt, 15% detritus, 10% gravel, 5% sand with a series of scattered small/shallow pools and riffle sections. Visual observations of common minnows were noted throughout this natural channel section. In-stream water temperatures were taken on July 13 and August 10 site visits which water temperature recorded at 16.0C and 24.0C respectively, indicating a warm water thermal regime. Early spring site investigations identified a small seep zone situated approximately 60m west of the natural channel section beyond the woodland cover, providing intermittent, trickle surface water inflow to this water course. The seep discharge channel showed evidence of past shallow channelization/ditching, with location mapping provided on Figure No. 8. During the mid-summer season period, the merge location of this trickle flow entering the water course from the seep discharge channel became a thermal refuge holding pool for the few minnows observed in this channel section. This seep feature and its intermittent surface water discharge provides water quantity and improved water quality to the receiving unnamed water course channel and subsequently the receiving South Saugeen River, aiding to support Fish and Fish Habitat within both water course systems.

### **13.2 Impact Assessment**

The Provincial Natural Heritage Reference Manual (NHRM), 2010 for Fish Habitat under Table 11.3 in part states:

*Warmwater streams: Recommended minimum natural vegetation cover adjacent to fish habitat is 30m or 150m where it is demonstrated as satisfying policy 2.1.6.*

The Wellington County 'General' section for water resources under policy 4.9.2 states:

*Watercourses, lakes, ponds and wetlands and appropriate setbacks will be protected through their inclusion in the County's Greenlands System.*

However the watercourse within the Study Lands is not part of the Greenlands System (see Figure No. 4), though it has been confirmed on-site, to support fish and Fish Habitat.

Under the Greenlands System for 'Fish Habitat', policy 5.4.2 in part states:

*Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.*

Through on-site investigations of 2017, the thermal regime for this unnamed watercourse was classed as 'warm water'. Due to downstream terrain features and 'perched' in-line culverts within this unnamed watercourse, there is no potential for upstream fish movement from the South Saugeen River to the Study Lands water course area. As such, the fish community within the upper reaches of this unnamed watercourse is restricted to the resident common minnow and dace family members, all warm-cool water regime species with no known or documented fish having a significant conservation status. The 'Plan of Survey' within Appendix 4, shows the upper open channel section of this watercourse to already have a municipal drain component, with a 6m wide drainage access easement. As such, it is recommended that a minimum 15m wide development setback from both the channel top-of-bank sides and around the identified seep zone, downstream from this drainage easement end point, is sufficient to maintain no negative impact to Fish Habitat within this watercourse section.

With site development having a minimum separation distance of 15, and maintaining this setback area in a natural vegetation condition, no negative impacts to fish or fish habitat would be anticipated. Therefore, it can be concluded that mitigation site development setback from the watercourse, Site Development would be in compliance with the Federal Fisheries Act, the PPS 2.16 and 2.18 and the intent of the County Greenlands System policy for Fish Habitat.

## **14 Significant Woodland**

### **14.1 Vegetation Community Characterization**

Vegetation community No. 5, delineated on Figure No. 7, represents the Significant Woodland feature within the Site Lands. This community type is a blend of conifer plantation and natural regenerating conifers.

Within the Study Lands southeast corner, given past site disturbances, land clearing and minimal natural vegetation, no terrestrial ecological functions of these adjacent lands can be attributed to supporting the Significant Woodland situated 20m further to the south.

Along the western perimeter of the Study Lands, the westerly Significant Woodland abuts the open field environment of vegetation community No. 4. This field environment is in annual active agricultural cash crop production, with limited ecological functions supporting the adjacent woodland other than water infiltration to support the root rhizome system to edge trees.

## 14.2 Impact Assessment

Within the Study Lands southeast corner, Martin Street separates the proposed development lands from the Significant Woodland feature further to the south. This road functions as a hydrology and shallow groundwater flow pattern physical barrier through water diversion and ditching. As such, Site Development within the Study Lands would have no negative impact to the health or root rhizome system of the woodland trees in proximity to the southeast corner, thus no mitigative measures specific to this area of Significant Woodlands is required.

Site Development along the western edge of the Study Lands could negatively impact upon the root rhizomes through below grade excavation, filling and/or grading, which in turn could negatively impact tree health along this woodlands edge. Presently the primary canopy tree line edge of this woodland fluctuates from 2m to 4m west of this property line. Given the primary canopy tree species here are conifers, having an average crown radius of 2m to 3m, it is recommended that site alterations for development maintain a minimum 1.5m separation from the western property limit, considered to be a buffer zone to the significant woodland feature. Lot lines can overlap into this setback area however; no development, site alterations below existing grade or fill placement for grading purposes should not exceed 20cm in depth, are to occur within this significant woodland buffer zone strip.

With a development setback/buffer zone established along this western boundary, it has been demonstrated that no negative impacts to the significant woodland or the ecological functions identified within its adjacent land would be anticipated from Site Development within the Study Lands. Therefore it has been concluded, that with this mitigative measure, Site Development would be in compliance with the PPS 2.1.8.

## 15 Mitigation

The following mitigative measures should be implemented through Site Plan Control, Development Agreement and/or Development permits/approvals. These measures are recommended to maintain the ecological functioning role and natural heritage features that have been identified within the Study Lands and are in compliance with applicable Acts, Legislation, and Natural Heritage Planning Policies of the Provincial Policy Statement, County and Town Official Plans and environmental guidelines.

- 15.1 For the unnamed water course feature, Site Development shall maintain a minimum 15m setback, downstream from the drainage easement end point, from the water coursed top-of-bank and around the perimeter to the identified seep zone, as delineated on Figure No. 9. This development setback is considered to be a vegetated buffer zone to these surface water features and supporting the identified locally rare flora, Pale Sedge colony. This is an area of no development or site alterations and to be left in a natural environment state.
- 15.2 No Site Development shall be permitted within 1.5 metres to the western property line. Minor site alteration for grading is permissible provided no excavation below existing grade or fill placement greater than 20cm depth is to occur within this setback/buffer zone, as delineated on Figure No. 9.

15.3 With confirmed bird nesting and rearing within the Study Lands woodland and hedgerow habitat, no tree or shrub felling or removal shall occur from April 1<sup>st</sup> to August 15<sup>th</sup> in accordance to the Federal Migratory Birds Act.

## 16 Conclusions

Through the Impact Assessment component of this EIA, it has been demonstrated that with the recommended mitigative measures established, Site Development is anticipated to have no measurable negative impacts or loss of ecological function to the Natural Heritage features assessed within the Site Lands. With constrained Site Development through buffer zone/setback establishment, constrained tree cutting period and approved Storm Water Management design, it has been concluded that potential development activity to the natural environment have been mitigated and Site Development would not negatively impact the on-site or off-site significant natural heritage features identified or their supporting ecological functions of their adjacent lands. Therefore, mitigated Site Development would be in compliance with the Federal Fisheries Act, Natural Heritage policy of the Provincial Policy Statement and General plus Greenland policies of Wellington County Official Plan.

All comments contained within this report 'italicized' are quotes pertaining to available literature, technical reports, manuals and documents relevant to the features and/or functions observed within these Study Lands. All natural feature locations are estimates based on current Wellington County air photo imagery and plotting by hand held GPS unit of significant features. The maps contained within this report should not be considered 'a legal survey' but are deemed adequate for this planning/application review process.

Respectfully Submitted



---

John Morton, President  
AWS Environmental Consulting Inc.

## 17 References

- Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds) 2007 Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto Canada.
- Environment Canada, Federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC), [www.cosewic.gc.ca](http://www.cosewic.gc.ca)
- Environment Canada, Federal Migratory Birds Act, General Nesting Periods of Migratory Birds in Canada, 2007
- 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, South central Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02
- Natural Heritage Information Centre (NHIC), 2017  
Provincial status of Plants, Wildlife and Vegetation Communities database  
OMNR, Peterborough. [http://nhic.mnr.gov.on.ca/nhic\\_.cfm](http://nhic.mnr.gov.on.ca/nhic_.cfm)
- Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, Ontario Ministry of Natural Resources, March 2010
- Oldham, M.J., W.D. Bakowsky and D.A. Sutherland, (1995). Floristic Quality Assessment for Southern Ontario. Ontario Ministry of Natural Resources, Natural Heritage Information Centre
- Ontario Ministry of Natural Resources and Forestry (MNRF), 2000  
Significant Wildlife Habitat Technical Guide, Fish and Wildlife Branch
- MNRF, January 2015 Significant Wildlife Habitat Ecoregion 6E Criteria Schedule
- MNRF, Version 2014, Significant Wildlife Habitat Mitigation Support Tool
- MNRF and Land Information Ontario, 2017, Fish & Wildlife files and mapping
- MNRF, Committee on the Status of Species at Risk in Ontario (COSSARO), 2017  
[www.mnr.gov.on.ca/mnr/speciesatrisk](http://www.mnr.gov.on.ca/mnr/speciesatrisk)
- Ontario Ministry of Municipal Affairs and Housing, 2014.  
Provincial Policy Statement
- Wellington County Official Plan, 2017 and schedule mapping

## 18 Figures

### Mapping Note for Clarification:

All Below Figures Are A Very Close Approximation For The Property Boundary But Given Various Mapping Scales, Boundary Anomalies etc., Figures May Not Match The Final Subdivision Site Plan Dimensions Etc. To Its Entirety.

Figure No. 1.....	Property Location
Figure No. 2.....	Study and Site Lands
Figure No. 3.....	Provincial Natural Heritage Features
Figure No. 4.....	Wellington County Official Plan- Land Use Designations
Figure No. 5.....	Wellington County web site, Environmental Constraints
Figure No. 6.....	Saugeen Valley Conservation Authority Regulatory Lands
Figure No. 7.....	Vegetation Communities & ELC Types
Figure No. 8.....	Natural Heritage Features
Figure No. 9.....	No Development and Constraint Zones



Figure No. 1: Property Location



Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion
- Wetland
- Provincially Significant Wetland Evaluated
- Non-Provincially Significant Wetland Evaluated
- Unrated Wetland
- Area of Natural Heritage & Scientific Interest (ANH&SI)
- Provincially Significant Life Science AHSI
- Provincially Significant Earth Science AHSI

Subject Property & Study Lands



Scale: 1 : 9,027



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

© Queen's Printer for Ontario, 2014

Imagery Copyright Notices: DRAPÉ © Aéro-Photo (1961) Inc., 2008 - 2009  
 GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008  
 © Copyright for Ontario Parcel data is held by Queen's Printer for Ontario and its licensors [2013] and may not be reproduced without permission. THIS IS NOT A PLAN OF SURVEY.



## Figure No. 2: Study and Site Lands



### Legend

Base layer: 2015 Air Photo

Study Lands



Site Lands  
(Study Lands + 120m  
Adjacent Lands)



Part Lots 1 & 2,  
WSOSR, Arthur  
Settlement of Mount Forest



0.5

0 0.23 0.5

Kilometers

Scale: 1 : 9,027



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

Imagery Copyright Notices: DRAPÉ © Aéro-Photo (1961) Inc., 2008 - 2009  
GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008

© Copyright for Ontario Parcel data is held by Queen's Printer for Ontario and its licensors [2013] and may not be reproduced without permission. THIS IS NOT A PLAN OF SURVEY.

© Queen's Printer for Ontario, 2014



Figure No. 3: Provincial Features



0.5 0 0.23 0.5 Kilometers

Scale: 1 : 9,027



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

Imagery Copyright Notices: DRAPÉ © Aéro-Photo (1961) Inc., 2008 - 2009  
GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008

© Copyright for Ontario Parcel data is held by Queen's Printer for Ontario and its licensors [2013] and may not be reproduced without permission. THIS IS NOT A PLAN OF SURVEY.

© Queen's Printer for Ontario, 2014

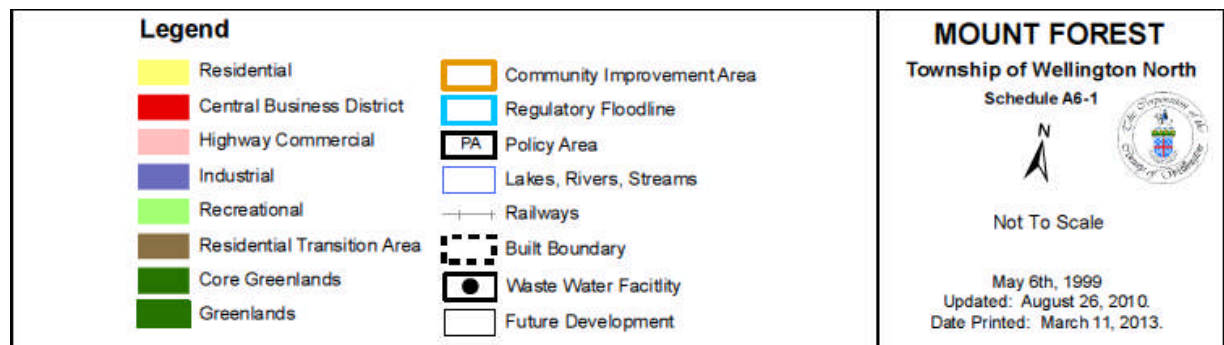
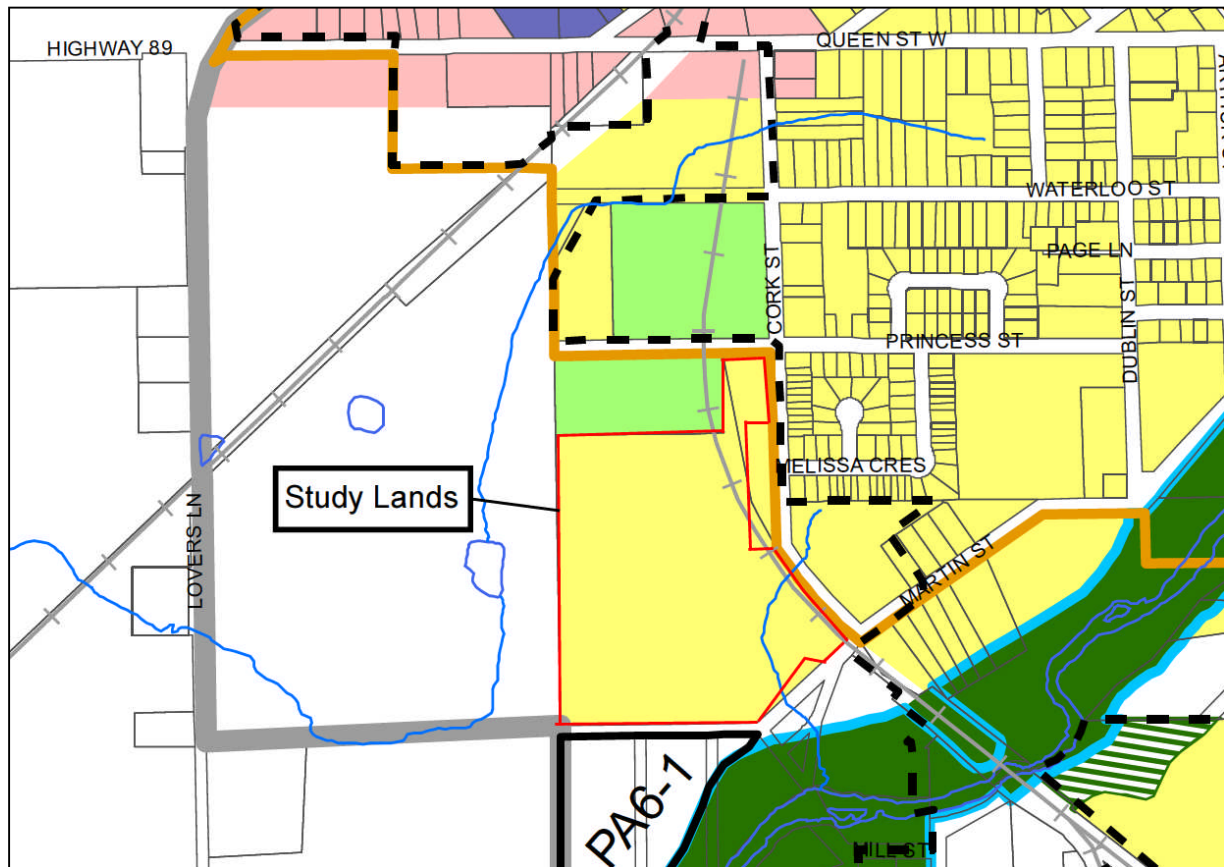
Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion
- Wetland
  - Provincially Significant Wetland Evaluated
  - Non - Provincially Significant Wetland Evaluated
  - Wetland Eriogonid
  - Unrelieved Wetland
- Area of Natural Heritage & Scientific Interest (ANHS)
  - Provincially Significant Life Science (ALSL)
  - Provincially Significant Earth Science (AESL)
- Greenbelt Plan
  - Boundary
  - River Valley Connections
- Land Use Designations
  - Protected Countryside
  - Towns and Villages
  - Hamlets
  - Urban River Valley
  - Specialty Crop Area
- Niagara Escarpment Plan (NEP)
  - Boundary
  - Parks and Open Space System
- Land Use Designations
  - Escarpment Natural Area
  - Escarpment Protection Area
  - Escarpment Rural Area
  - Mineral Resource Extraction Area
  - Escarpment Recreation Area
  - Urban Area
  - Minor Urban Centre
- Oak Ridges Moraine Conservation Plan (ORM)
  - Boundary
  - Land Use Designations
    - Natural Core Area
    - Natural Linkage Area
    - Countryside Area
    - Rural Settlement
    - Palgrave Estates Residential Community
    - Settlement Area



**Figure No. 4: Wellington County Official Plan – Land Use Designations**

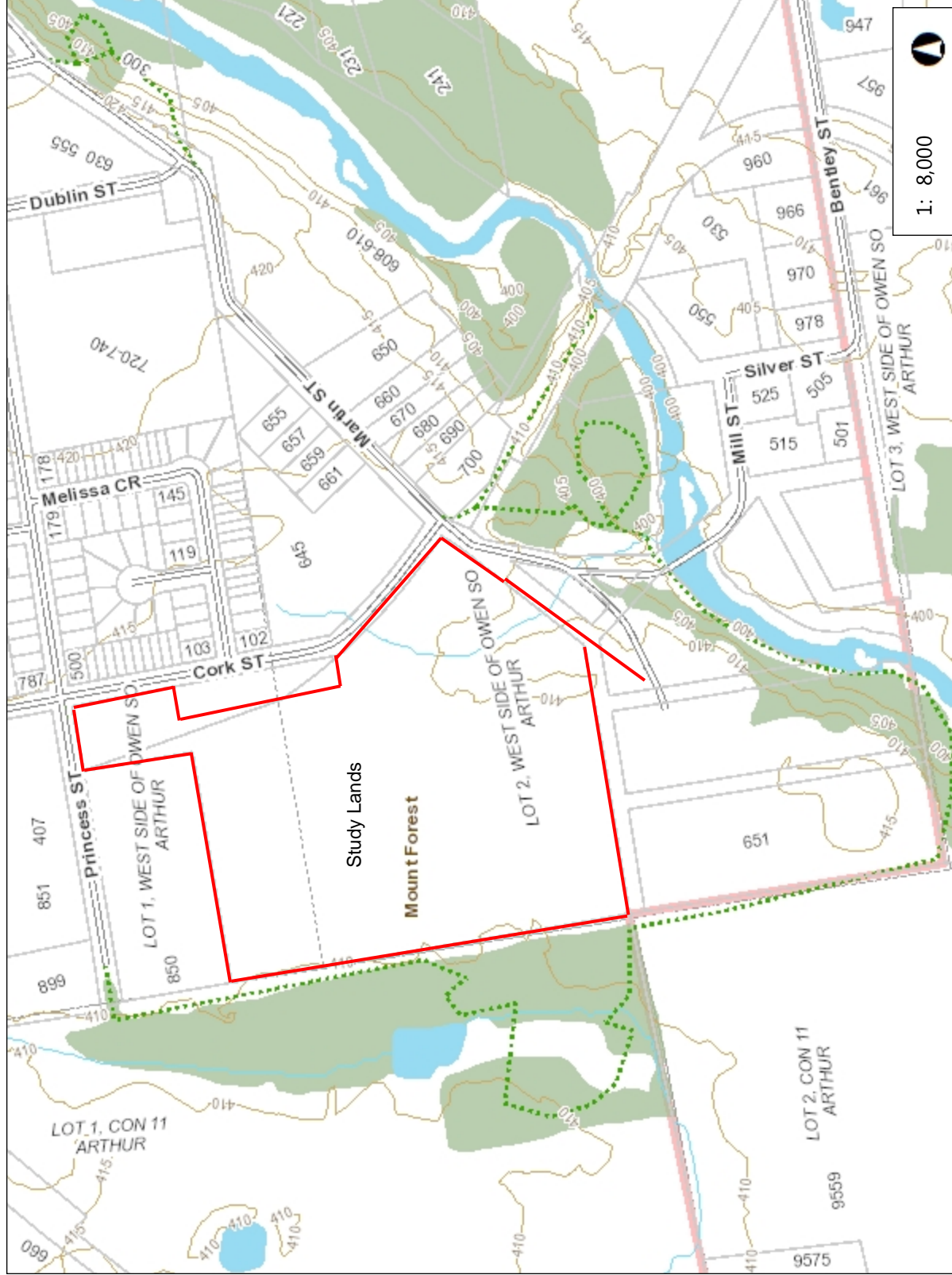
- Base map source: Schedule A6-1





Explore Wellington

Figure No. 5: Environmental Constraints, Wellington County



Legend

- Parcels
- Roads
  - Local Road
  - County Road
  - Highway
- Railways
- Trails
- Contours
- Earth Science ANSI
- Life Science ANSI
- Waterbodies
- Watercourses
- Significant Wooded Areas
- Urban Centres and Hamlets
- Municipalities
- Lots and Concessions

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

Produced using information under license with the Grand River Conservation Authority. Copyright © Grand River Conservation Authority, 2016.

THIS IS NOT SURVEY DATA. Parcels - Teranet 2002, Wellington County 2016

**Notes**

South Saugene Developments Ltd  
Mount Forest-Cork Street Dev.

# Figure No. 6: Saugeen Valley Conservation Authority- Regulatory Lands

- Base map source:

Ontario Regulation 169/06 Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation - Approximate Regulated Area and Approximate Screening Area



Approximate Regulated Area  
Approximate Screening Area





Figure No. 7: Vegetation Communities



**Legend**

- Study Lands □
- Site Lands □
- Vegetation Community Boundary □
- Vegetation Community Number 1

**E.L.C. Types**

- 1 = FOD6-5 : Fresh-Moist Sugar Maple-Hardwood Forest
- 2 = CUM1-1 ; Dry-Moist Old Field Meadow, Site Disturbances
- 3 = Hedgerow, Hardwoods
- 4= Agricultural Fields (Cash Crop)
- 5 = CUP3-2: Conifer Plantation, Mix of White, Red Pine and White Cedar
- 6 = SWM2-1: Red Maple -Conifer Mineral Mixed Swamp



0.2 0 0.11 0.2 Kilometers

Scale: 1 : 4,513



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

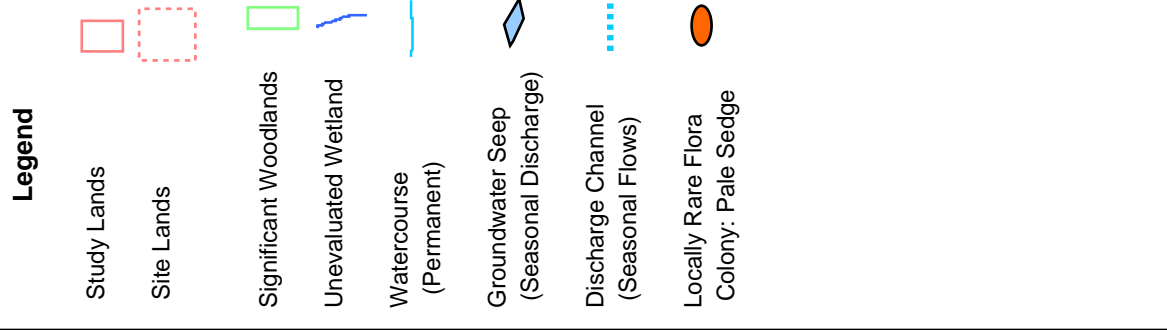
Imagery Copyright Notices: DRAPÉ © Aéro-Photo (1961) Inc., 2008 - 2009  
GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008

© Copyright for Ontario Parcel data is held by Queen's Printer for Ontario and its licensors [2013] and may not be reproduced without permission. THIS IS NOT A PLAN OF SURVEY.

© Queen's Printer for Ontario, 2014



Figure No. 8: Natural Heritage Features



Scale: 1 : 4,513



This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry (OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.  
© Queen's Printer for Ontario, 2014

Imagery Copyright Notices: DRAPÉ © Aéro-Photo (1961) Inc., 2008 - 2009  
GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008  
© Copyright for Ontario Parcel data is held by Queen's Printer for Ontario and its licensors [2013] and may not be reproduced without permission. THIS IS NOT A PLAN OF SURVEY.



Legend	
	Study Lands
	Site Lands
	Significant Woodlands
	Unevaluated Wetland
	Watercourse (Permanent)
	Groundwater Seep (Seasonal Discharge)
	Discharge Channel (Seasonal Flows)
	Locally Rare Flora Colony: Pale Sedge
	No Development: Existing 6m Wide Drainage Easement
	No Development: 15m Setback to Watercourse & Min. 5m Setback to Seep Zone and Locally Rare Plant Colony Site
	Constraint Area: 1.5m wide Setback to Significant Woodland Edge, No Excavation or Fill Placement

0.2 0 0.11 0.2 Kilometers

Scale: 1 : 4,513



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

Imagery Copyright Notices: DRAPÉ © Aéro-Photo (1961) Inc., 2008 - 2009  
GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008  
© Copyright for Ontario Parcel data is held by Queen's Printer for Ontario and its licensors [2013] and may not be reproduced without permission. THIS IS NOT A PLAN OF SURVEY.

## **APPENDIX 1**

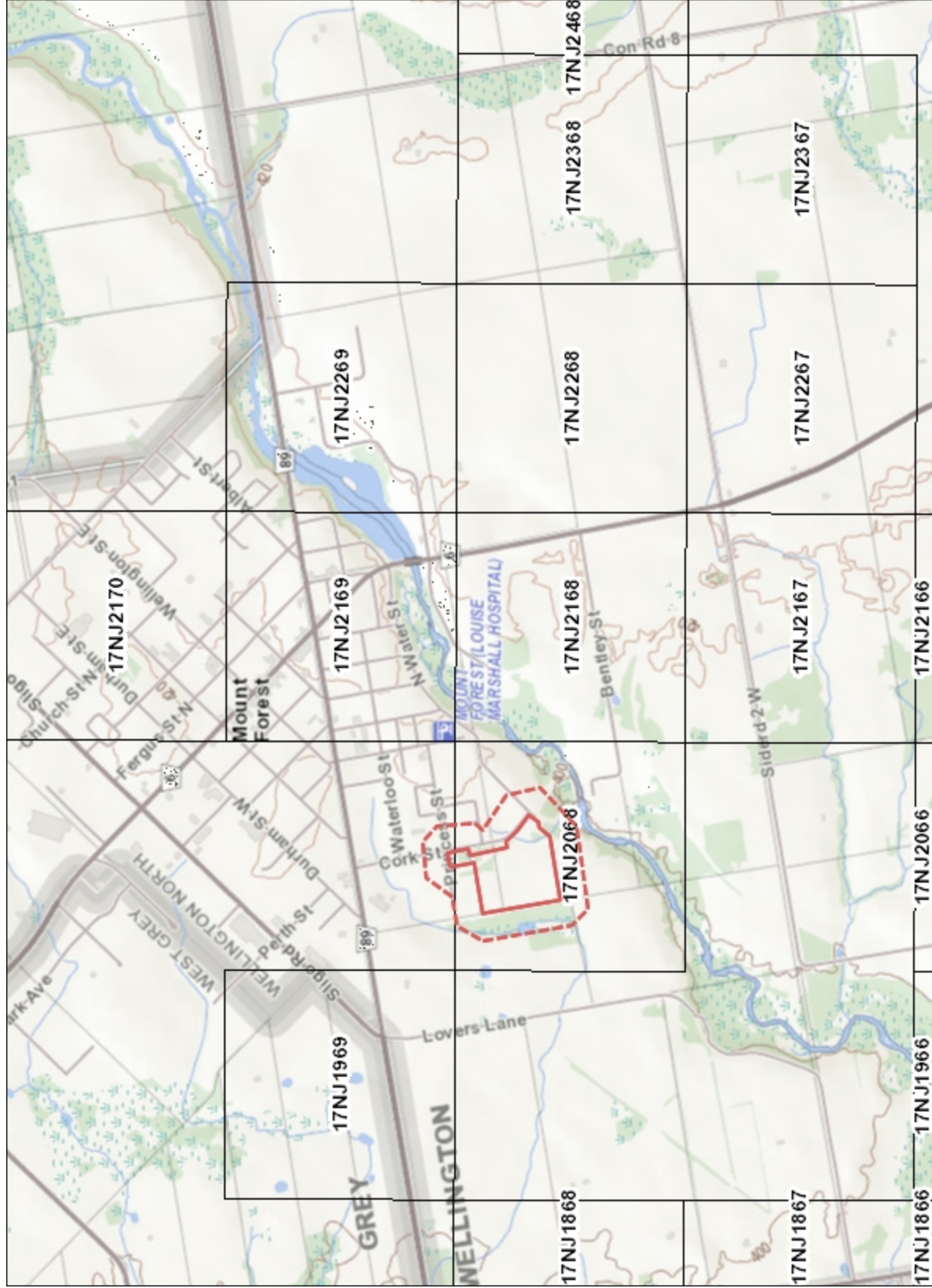
- MNRF- Natural Heritage Center data search for historical records of significant Flora and Fauna, with UTM search coverage map of surrounding 5km area



Ministry of Natural Resources and Forestry  
Make-a-Map: Natural Heritage Areas

# HISTORICAL RECORDS SEARCH, 5KM RADIUS FROM STUDY LANDS FOR SIGNIFICANT FLORA AND FAUNA

Notes: South Saugeen Development Ltd.  
Mount Forest Cork Street Residential Development



## Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion
- Wetland
- Provincially Significant Wetland Evaluated
- Non-Provincially Significant Wetland Evaluated
- Unrated Wetland
- Area of Natural Heritage & Scientific Interest (ANH/SSI)
- Provincially Significant Life Science (PLS)
- Provincially Significant Earth Science (PES)
- Greenbelt Plan
- Boundary
- River Valley Connections
- Land Use Designations
- Protected Countryside
- Towns and Villages
- Hamlets
- Urban River Valley
- Specialty Crop Area
- Niagara Escarpment Plan (NEP)
- Boundary
- Parks and Open Space System
- Land Use Designations
- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre
- Oak Ridges Moraine Conservation Plan (ORM)
- Boundary
- Land Use Designations
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area



Scale: 1 : 36,111

1.8 Kilometers



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

Imagery Copyright Notices: DRAPÉ © Aéro-Photo (1961) Inc., 2008 - 2009  
GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008  
© Copyright for Ontario Parcel data is held by Queen's Printer for Ontario and its licensors [2013] and may not be reproduced without permission. THIS IS NOT A PLAN OF SURVEY.

© Queen's Printer for Ontario, 2014



## **South Saugeen Development Ltd.: Mount Forest, Cork Street Development**

Ontario Ministry of Natural Resources and Forestry – NHIC historical records search for Significant Flora and Fauna within 5 km of the Study Lands

### Source:

OMNRF – Natural Heritage Information Center data in the Land Information Ontario on-line databases

#### Bobolink (*Dolichonyx oryzivorus*)

- Provincial Ranking = S4, Provincial Status = Threatened
- Last recorded in the search area 2002

#### Eastern Meadowlark (*Sturnella magna*)

- Provincial Ranking = S4, Provincial Status = Threatened
- Last recorded in the search area 2001

#### Massasauga (*Sistrurus catenators*)

- Provincial Ranking = S3, Provincial Status = Threatened
- Last recorded in the search area 1978

#### Eastern Milksnake (*Lampropeltis triangularis*)

- Provincial Ranking = S4, Provincial Status = Special Concern
- Last recorded in the search area 1986

#### Snapping Turtle (*Chelydra serpentina*)

- Provincial Ranking = S3, Provincial Status = Special Concern
- Last recorded in the search area 2004

#### Scarlet Beebalm (*Monarda didyma*)

- Provincial Ranking = S3, Provincial Status = Rare
- Last recorded in the search area 1977

#### Hill's Pondweed (*Potamogeton hillii*)

- Provincial Ranking = S2S3, Provincial Status = Rare
- Last recorded in the search area 1978

## **APPENDIX 2**

- Flora Listing: Rankings, Status and Floristic Quality Scoring

## South Saugeen Development Ltd. - Mount Forest, Cork Street Development

Flora Inventory with Current Ranking, Status and Floristic Quality Assessment Scores

Vegetation Community Numbers 1, 2 and 3 : One species of local conservation concern found.

Latin Name	Common Name	Native or Introduced	Rank		Status			FQA	
			Nat.	Prov.	Nat.	Prov.	Local	CC	CW
<i>Acer negundo</i>	Manitoba Maple	N	N5	S5	NAR	NAR	Common	0	-2
<i>Acer rubrum</i>	Red Maple	N	N5	S5	NAR	NAR	Common	4	0
<i>Acer saccharum</i>	Sugar Maple	N	N5	S5	NAR	NAR	Common	4	3
<i>Alliaria petiolata</i>	Garlic Mustard	I	NNA	SNA	Exotic	Exotic	Exotic	0	0
<i>Ambrosia artemisiifolia</i>	Ragweed	N	N5	S5	NAR	NAR	Common	0	3
<i>Anthriscus sylvestris</i>	Wild Chervil	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Apocynum androsaemifolium</i>	Spreading Dogbane	N	N5	S5	NAR	NAR	Common	3	5
<i>Arctium minus</i>	Burdock	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Asclepias syriaca</i>	Common Milkweed	N	N5	S5	NAR	NAR	Common	0	5
<i>Athyrium filix-femina</i>	Lady Fern	N	N5	S5	NAR	NAR	Common	4	0
<i>Betula papyrifera</i>	Paper Birch	N	N5	S5	NAR	NAR	Common	2	2
<i>Carex bebbii</i>	Bebb's Sedge	N	N5	S5	NAR	NAR	Common	3	-5
<i>Carex flacca</i>	Glaucus Sedge	I	NNA	SNA	Exotic	Exotic	Exotic	0	0
<i>Carex gracillima</i>	Graceful Sedge	N	N5	S5	NAR	NAR	Common	4	3
<i>Carex granularis</i>	Meadow Sedge	N	N5	S5	NAR	NAR	Common	3	-4
<i>Carex hystericina</i>	Porcupine Sedge	N	N5	S5	NAR	NAR	Common	5	-5
<b><i>Carex pallescens</i></b>	<b>Pale Sedge</b>	N	N5	S5	NAR	NAR	<b>Rare</b>	5	3
<i>Carex stipata</i>	Awl-fruited Sedge	N	N5	S5	NAR	NAR	Common	3	-5
<i>Caulophyllum thalictroides</i>	Blue Cohosh	N	N5	S5	NAR	NAR	Common	6	5
<i>Circaea canadensis</i>	Enchanter's Nightshade	N	N5	S5	NAR	NAR	Common	3	3

<i>Cirsium arvense</i>	Canada Thistle	I	NNA	SNA	Exotic	Exotic	Exotic	0	3
<i>Clinopodium vulgare</i>	Wild Basil	N	N5	S5	NAR	NAR	Common	4	5
<i>Convolvulus arvensis</i>	Black Bindweed	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	N	N5	S5	NAR	NAR	Common	6	5
<i>Cornus amomum</i>	Silky Dogwood	N	N5	S5	NAR	NAR	Common	5	-4
<i>Cornus racemosa</i>	Grey Dogwood	N	N5	S5	NAR	NAR	Common	2	-2
<i>Cornus stolonifera</i>	Red Osier Dogwood	N	N5	S5	NAR	NAR	Common	2	-3
<i>Crataegus punctata</i>	Dotted Hawthorn	N	N5	S5	NAR	NAR	Common	4	5
<i>Dactylis glomerata</i>	Orchard Grass	I	NNA	SNA	Exotic	Exotic	Exotic	0	3
<i>Daucus carota</i>	Wild Carrot	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Dipsacus fullonum</i>	Teasel	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Dryopteris carthusiana</i>	Spinulose Woodfern	N	N5	S5	NAR	NAR	Common	5	-2
<i>Echinocystis lobata</i>	Wild Cucumber	N	N5	S5	NAR	NAR	Common	3	-2
<i>Echium vulgare</i>	Bugloss	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Eleocharis palustris</i>	Small's Spikerush	N	N5	S5	NAR	NAR	Common	0	0
<i>Elymus repens</i>	Twitch Grass	I	NNA	SNA	Exotic	Exotic	Exotic	0	3
<i>Epilobium parviflorum</i>	Downy Willow-herb	I	NNA	SNA	Exotic	Exotic	Exotic	0	3
<i>Equisetum arvense</i>	Field Horsetail	N	N5	S5	NAR	NAR	Common	0	0
<i>Erigeron annuus</i>	Annual Fleabane	N	N5	S5	NAR	NAR	Common	0	1
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	N	N5	S5	NAR	NAR	Common	1	-3
<i>Erigeron strigosus</i>	Rough Fleabane	N	N5	S5	NAR	NAR	Common	0	1
<i>Erythronium americanum</i>	Trout Lily	N	N5	S5	NAR	NAR	Common	5	5
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	N	N5	S5	NAR	NAR	Common	2	-2
<i>Fragaria virginiana</i>	Wild Strawberry	N	N5	S5	NAR	NAR	Common	2	1
<i>Fraxinus americana</i>	White Ash	N	N5	S4	NAR	NAR	Common	4	3
<i>Galeopsis tetrahit</i>	Hemp Nettle	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Galium palustre</i>	Marsh Bedstraw	N	N5	S5	NAR	NAR	Common	5	-5
<i>Galium triflorum</i>	Scented Bedstraw	N	N5	S5	NAR	NAR	Common	4	2
<i>Geum aleppicum</i>	Yellow Avens	N	N5	S5	NAR	NAR	Common	2	-1

<i>Glechoma hederacea</i>	Ground Ivy	I	NNA	SNA	Exotic	Exotic	Exotic	0	3
<i>Glyceria striata</i>	Fowl Manna Grass	N	N5	S5	NAR	NAR	Common	3	-5
<i>Hemerocallis fulva</i>	Orange Day Lily	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Heracleum mantegazzianum</i>	Giant Hogweed	I	NNA	SNA	Exotic	Exotic	Exotic	0	0
<i>Hesperis matronalis</i>	Dame's Rocket	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Hypericum perforatum</i>	Common St. John's Wort	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Impatiens capensis</i>	Touch-Me-Not	N	N5	S5	NAR	NAR	Common	4	-3
<i>Juglans nigra</i>	Black Walnut	N	N4	S4	NAR	NAR	Common	5	3
<i>Juncus alpinoarticulatus</i>	Alpine Rush	N	N5	S5	NAR	NAR	Common	5	-5
<i>Juncus dudleyi</i>	Dudley's Rush	N	N5	S5	NAR	NAR	Common	1	0
<i>Juncus effusus</i>	Soft Rush	N	N5	S5	NAR	NAR	Common	4	-5
<i>Lepidium campestre</i>	Field Peppergrass	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Leucanthemum vulgare</i>	Ox-eye Daisy	I	NNA	SNA	Exotic	Exotic	Exotic	0	0
<i>Lithospermum officinale</i>	European Gromwell	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	I	NNA	SNA	Exotic	Exotic	Exotic	0	-3
<i>Lotus corniculatus</i>	Bird's-foot Trefoil	I	NNA	SNA	Exotic	Exotic	Exotic	0	1
<i>Lycopus uniflorus</i>	Northern Water-horehound	N	N5	S5	NAR	NAR	Common	5	-5
<i>Lysimachia ciliata</i>	Fringed Loosestrife	N	N5	S5	NAR	NAR	Common	4	-3
<i>Lythrum salicaria</i>	Purple Loosestrife	I	NNA	SNA	Exotic	Exotic	Exotic	0	-5
<i>Maianthemum stellatum</i>	Starry False Solomon's Seal	N	N5	S5	NAR	NAR	Common	6	1
<i>Malus pumila</i>	Apple	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Medicago lupulina</i>	Black Medick	I	NNA	SNA	Exotic	Exotic	Exotic	0	1
<i>Medicago officinalis</i>	Alfalfa	I	NNA	SNA	Exotic	Exotic	Exotic	0	0
<i>Mentha spicata</i>	Spearmint	I	NNA	SNA	Exotic	Exotic	Exotic	0	-4
<i>Oenothera biennis</i>	Evening Primrose	N	N5	S5	NAR	NAR	Common	0	3
<i>Onoclea sensibilis</i>	Sensitive Fern	N	N5	S5	NAR	NAR	Common	4	-3
<i>Parthenocissus inserta</i>	Virginia Creeper	N	N5	S5	NAR	NAR	Common	3	3
<i>Phalaris arundinacea</i>	Reed Canary Grass	N	N5	S5	NAR	NAR	Common	0	-4
<i>Physocarpus opulifolius</i>	Ninebark	N	N5	S5	NAR	NAR	Common	5	-2

<i>Plantago lanceolata</i>	English Plantain	I	NNA	SNA	Exotic	Exotic	Exotic	0	0
<i>Poa compressa</i>	Canada Bluegrass	I	NNA	SNA	Exotic	Exotic	Exotic	0	2
<i>Poa trivialis</i>	Rough Bluegrass	I	NNA	SNA	Exotic	Exotic	Exotic	0	-3
<i>Populus balsamifera</i>	Balsam Poplar	N	N5	S5	NAR	NAR	Common	4	-3
<i>Populus tremuloides</i>	Trembling Aspen	N	N5	SS5	NAR	NAR	Common	2	0
<i>Potentilla recta</i>	Sulphur Cinquefoil	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Prunella vulgaris ssp lanceolata</i>	Heal-all	N	N5	S5	NAR	NAR	Common	5	5
<i>Prunus serotina</i>	Black Cherry	N	N5	S5	NAR	NAR	Common	3	3
<i>Prunus virginiana</i>	Chokecherry	N	N5	S5	NAR	NAR	Common	2	1
<i>Pyrus malus</i>	Pear	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Ranunculus acris</i>	Common Buttercup	I	NNA	SNA	Exotic	Exotic	Exotic	0	-2
<i>Ranunculus repens</i>	Creeping Buttercup	I	NNA	SNA	Exotic	Exotic	Exotic	0	-1
<i>Rhamnus cathartica</i>	Common Buckthorn	I	NNA	SNA	Exotic	Exotic	Exotic	0	3
<i>Ribes rubrum</i>	Garden Red Currant	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Robinia pseudoacacia</i>	Black Locust	I	NNA	SNA	Exotic	Exotic	Exotic	0	4
<i>Rubus occidentalis</i>	Black Raspberry	N	N5	S5	NAR	NAR	Common	2	5
<i>Rumex crispus</i>	Curly Dock	I	NNA	SNA	Exotic	Exotic	Exotic	0	-1
<i>Rumex obtusifolius</i>	Broad-leaved Dock	I	NNA	SNA	Exotic	Exotic	Exotic	0	-3
<i>Salix discolor</i>	Pussy Willow	N	N5	S5	NAR	NAR	Common	3	-3
<i>Salix euxina</i>	Crack Willow	I	NNA	SNA	Exotic	Exotic	Exotic	0	0
<i>Salix purpurea</i>	Basket Willow	I	NNA	SNA	Exotic	Exotic	Exotic	0	-3
<i>Scirpus atrovirens</i>	Dark Green Bulrush	N	N5	S5	NAR	NAR	Common	3	-5
<i>Silene vulgaris</i>	Bladder Campion	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Solidago altissima</i>	Tall Goldenrod	N	N5	S5	NAR	NAR	Common	1	3
<i>Solidago canadensis</i>	Canada Goldenrod	N	N5	S5	NAR	NAR	Common	1	3
<i>Solidago gigantea</i>	Late Goldenrod	N	N5	S5	NAR	NAR	Common	4	-3
<i>Symphyotrichum lateriflorum</i>	Calico Aster	N	N5	S5	NAR	NAR	Common	3	-2
<i>Symphyotrichum lateriflorum</i>	Panicled Aster	N	N5	S5	NAR	NAR	Common	3	-3
<i>Symphyotrichum novae-angliae</i>	New England Aster	N	N5	S5	NAR	NAR	Common	2	-3

<i>Symphoricarpon puniceum</i>	Purple-stemmed Aster	N	N5	S5	NAR	NAR	Common	6	-5
<i>Taraxacum officinale</i>	Dandelion	I	NNA	SNA	Exotic	Exotic	Exotic	0	3
<i>Thalictrum pubescens</i>	Meadow Rue	N	N5	S5	NAR	NAR	Common	5	-2
<i>Tilia americana</i>	Basswood	N	N5	S5	NAR	NAR	Common	4	3
<i>Tragopogon dubius</i>	Goat's Beard	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Trifolium pratense</i>	Red Clover	I	NNA	SNA	Exotic	Exotic	Exotic	0	2
<i>Trifolium repens</i>	White Clover	I	NNA	SNA	Exotic	Exotic	Exotic	0	2
<i>Tusselago farfara</i>	Colt's Foot	I	NNA	SNA	Exotic	Exotic	Exotic	0	3
<i>Typha angustifolia</i>	Narrow-leaf Cattail	I	NNA	SNA	Exotic	Exotic	Exotic	3	-5
<i>Ulmus americana</i>	American Elm	N	N5	S5	NAR	NAR	Common	3	-2
<i>Valeriana officinalis</i>	Common Valerian	I	NNA	SNA	Exotic	Exotic	Exotic	0	2
<i>Veronica anagalis-aquatica</i>	Water Speedwell	I	NNA	SNA	Exotic	Exotic	Exotic	0	-5
<i>Veronica chamaedrys</i>	Germander Speedwell	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Viburnum opule ssp. trilobum</i>	High-bush Cranberry	N	N5	S5	NAR	NAR	Common	5	-3
<i>Vicia cracca</i>	Common Vetch	I	NNA	SNA	Exotic	Exotic	Exotic	0	5
<i>Waldsteinia fragarioides</i>	Barren Strawberry	N	N5	S5	NAR	NAR	Common	5	5
MEAN								2	1

Total number of Native species =

70 or 57%

Total number of Introduced or Non-Native species =

53 or 43%

123

National and Provincial Rank: Based on current 2017 Ontario Natural Heritage Information Center (NHIC) listings

NNA/ NNR	defined as: No Ranking	SNA	defined as : Unranked
N5	defined as: Very common	S5	defined as: Secure
N4	defined as: Common	S4	defined as: Apparently Secure
N3	defined as: Rare to uncommon species	S3	defined as: Vulnerable
N2	defined as : Very Rare	S2	defined as: Imperiled
N1	defined as: Extremely Rare	S1	defined as: Critically Imperiled

NAR defined as : Not At Risk / END defined as : Endangered / THR defined as :Threatened / SC defined as : Special Concern

National Status based on: Species At Risk Act, COSEWIC 2017 Listings

Provincial Status based on: Endangered Species Act 2007, NHIC 2017 and 2017 COSSARO Listings

Regional Status based on: Vascular Flora of Wellington County, 1999, MNRF

Ontario Ministry of Natural Resources and Forestry, 'Floristic Quality Assessment' (**FQA**) Scoring System:

CC = Coefficient of Conservatism, ranked 0 (grows anywhere) to 10 (very specific habitat requirements)

WI = Wetness Index, values from -5 (very wet) to 5 (very dry)

Note: CC scores of 8 or higher are indicator species of candidate Significant Woodlands

### **APPENDIX 3**

- **Fauna Listing: Ranking and Status & Point Count Map**

## South Saugeen Development Ltd.: Mount Forest, Cork Street Development

Fauna Inventory with Current Ranking, Status and Observed Numbers

### No Species of Conservation Concern Identified

Latin Name	Common Name	Ranking		Status			Breeding Codes	Recorded in Point Counts	Observed Range of Adult Numbers
		Nat.	Prov.	Nat.	Prov.	Local			
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	N5	S5	NAR	Common	Po-H	B6	3	
<i>Archilochus colubris</i>	Ruby-throated Hummingbird	N5	S5	NAR	Common	Po-H	B4	1	
<i>Cardinalis cardinalis</i>	Northern Cardinal	N5	S5	NAR	Common	Pr	B2, B3, B5, B6	7	
<i>Carduelis tristis</i>	American Goldfinch	N5	S5	NAR	Common	Po-H	B1, B4, B6	3	
<i>Carpodacus purpureus</i>	Purple Finch	N5	S4	NAR	Common	Po-S	B2	1	
<i>Charadrius vociferus</i>	Killdeer	N5	S5	NAR	Common	Conf	B4	2	
<i>Colaptes auratus</i>	Northern Flicker	N5	S4	NAR	Common	Po-H	B1, B4	3	
<i>Cyanocitta cristata</i>	Blue Jay	N5	S5	NAR	Common	Pr	B2, B3, B4, B5	5	
<i>Icterus galbula</i>	Baltimore Oriole	N5	S4	NAR	Common	Po-H	B2	2	
<i>Molothrus ater</i>	Brown-headed Cowbird	N5	S4	NAR	Common	Po-H	B3, B6	3	
<i>Passer domesticus</i>	House Sparrow	NNA	SNA	Exotic	Exotic	Po-H	B1, B3	2	
<i>Picoides pubescens</i>	Downy Woodpecker	N5	S5	NAR	Common	Po-H	B2, B5	3	
<i>Poecile atricapillus</i>	Black-capped Chickadee	N5	S5	NAR	Common	Po-H	B2	4	
<i>Spizella passerina</i>	Chipping Sparrow	N5	S5	NAR	Common	Pr	B1, B4, B6	10+	
<i>Sturnus vulgaris</i>	European Starling	NNA	SNA	Exotic	Exotic	Po-H	B4	1	
<i>Tachycineta bicolor</i>	Tree Swallow	N5	S4	NAR	Common	Po-H	B4, B6	2	
<i>Troglodytes aedon</i>	House Wren	N5	S5	NAR	Common	Po-S	B2	1	
<i>Turdus migratorius</i>	American Robin	N5	S5	NAR	Common	Conf	B2, B3, B5, B6	5	
<i>Zenaida macroura</i>	Mourning Dove	N5	S5	NAR	Common	Po-H	B4	1	
<i>Zonotrichia albicollis</i>	White-throated Sparrow	N5	S5	NAR	Common	Po-H	B1, B4	3	

### Birds

#### Condensed Breeding Codes as per Bird Studies Canada Protocol

Ob = Observed bird outside of the Breeding Season  
 Ob -X = Observed in breeding season but no evidence of breeding  
 Po-H = Possible: Observed in suitable nesting habitat  
 Po-S = Possible: Singing/Calls in suitable nesting habitat  
 Pr = Probable: pairs observed, nest building, courtship display  
 Conf = Confirmed: active nest, egg shells, feeding young

Latin Name	Common Name	Ranking		Status		Observed Range of Adult Numbers
		Nat.	Prov.	Nat.	Prov.	
<i>Marmota flaviventris</i>	Woodchuck	N5	S5	NAR	NAR	1
<i>Odocoileus virginianus</i>	White-tailed Deer	N5	S5	NAR	NAR	1
<i>Peromyscus maniculatus</i>	Deer Mouse	N5	S5	NAR	NAR	2
<i>Procyon lotor</i>	Raccoon	N5	S5	NAR	NAR	1
<i>Sylvilagus floridanus</i>	Eastern Cottontail	N5	S5	NAR	NAR	1
<i>Tamias striatus</i>	Eastern Chipmunk	N5	S5	NAR	NAR	2
<i>Sciurus carolinensis</i>	Eastern Gray Squirrel	N5	S5	NAR	NAR	3

**Mammals**

<i>Thamnophis sirtalis sirtalis</i>	Eastern Gartersnake	N5	S5	NAR	NAR	1
-------------------------------------	---------------------	----	----	-----	-----	---

**Reptiles**

<i>Lithobates pipiens</i>	Northern Leopard Frog	N5	S5	NAR	NAR	12--15
<i>Hyla versicolor</i>	Gray Tree Frog	N5	S5	NAR	NAR	3

**Amphibians**

Minnows	Cyprinid Family					15--20
---------	-----------------	--	--	--	--	--------

**Fish**

<i>Celastrina neglecta</i>	Summer Azure	N5	S5	NAR	NAR	1
<i>Euphyes vestris</i>	Dun Skipper	N5	S5	NAR	NAR	2
<i>Phyciodes coccyta</i>	Northern Crescent	N5	S5	NAR	NAR	2

**Butterflies**

<i>Anax junius</i>	Common Green Darner	N5	S5	NAR	NAR	3 to 5
<i>Calopteryx maculata</i>	Ebony Jewelwing	N5	S5	NAR	NAR	2

**Dragonflies & Damselflies**

**National and Provincial Rank: Based on current 2017 Ontario Natural Heritage Information Center (NHIC) listings**

NNA defined as: Not Ranked  
 N5 defined as: Secure  
 N4 defined as: Apparently Secure  
 N3 defined as: Vulnerable  
 N2 defined as : Imperiled  
 N1 defined as: Critically Imperiled

SNA defined as : Unranked  
 S5 defined as: Secure  
 S4 defined as: Apparently Secure  
 S3 defined as: Rare to Uncommon  
 S2 defined as: Very Rare  
 S1 defined as: Extremely Rare

NAR defined as : Not At Risk      END defined as : Endangered      THR defined as: Threatened      SC defined as: Special Concern

National Status based on: Species At Risk Act, and COSEWIC 2017 Listings

Provincial Status based on: Endangered Species Act 2007, NHIC 2017, COSSARO 2017 Listings

Regional Status lists based on:      Birds- Region No. 47 (Wellington) 'Atlas Breeding Birds of Ontario 2001-2005'  
 Dragonflies & Damselflies (Grey-Wellington) ' Regional Lists of Ontario Odonata'

**Anuran (Frog and Toad) Point Count Calling Survey Results:**

Survey Date	Point Count No.	Species Code / Calling Code / Numbers
24-Apr-17	A1	GT/Code 1/ 1
	A2	Code 0
31-May-17	A1	NLF / Code 1 / 10-12      GT/ Code 1/ 2
	A2	NLF / Code 1 / 3

No suitable habitat was identified within the Study Lands for 'Late-Breeding' species (open water marsh communities) so no survey works undertaken in late June

North American / Bird Studies Canada - Marsh Monitoring Frog Calling Abundance Codes:  
 Code 0 = No calling Activity Recorded  
 Code 1 = Individual calls do not overlap and calling individuals can be discreetly counted  
 Code 2 = Calls of individuals sometimes overlap, but numbers of individuals can still be estimated  
 Code 3 = Overlap among calls seems continuous (full chores) and count estimate is impossible





Frog Species Codes:  
 GT = Gray Treefrog      NLF = Northern Leopard Frog



### Point Count Location Mapping



#### Legend

-  Study Lands
-  Site Lands
-  Anuran Night Time Calling Survey
-  Breeding Bird Survey

0.2 0 0.11 0.2 Kilometers



Scale: 1 : 4,513

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

Imagery Copyright Notices: DRAPÉ © Aéro-Photo (1961) Inc., 2008 - 2009  
GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008

© Copyright for Ontario Parcel data is held by Queen's Printer for Ontario and its licensors [2013] and may not be reproduced without permission. THIS IS NOT A PLAN OF SURVEY.

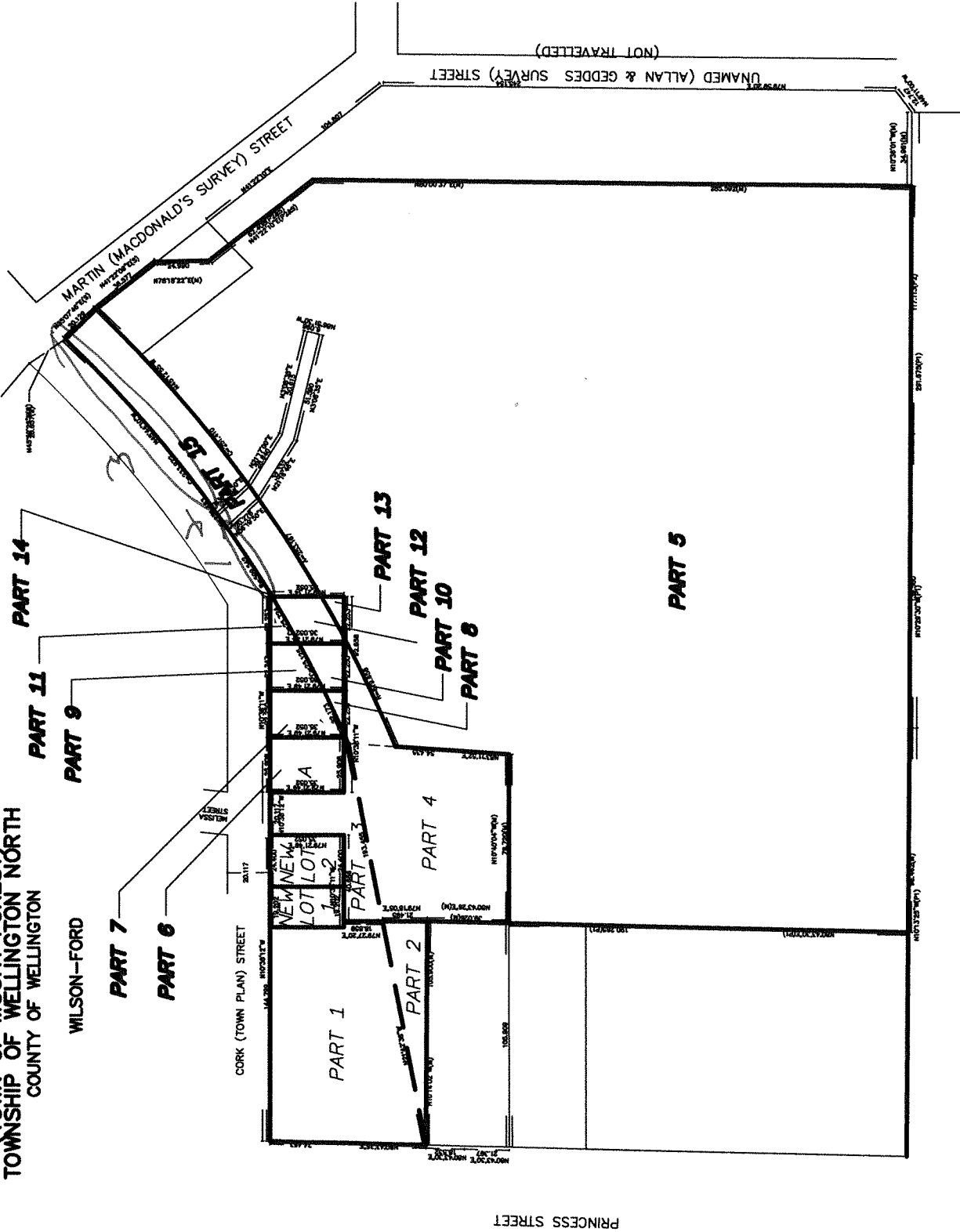
© Queen's Printer for Ontario, 2014



#### **APPENDIX 4**

- Current 'Plan of Survey' for the full Property

SKETCH OF  
**PART OF PARK LOT 10, SOUTH OF PRINCESS STREET &  
 PART OF PARK LOT "1" MacDONALD'S SURVEY &  
 PART OF DIVISION 1 OF LOT 2 WOSR  
 (TOWN OF MOUNT FOREST)  
 TOWNSHIP OF WELLINGTON NORTH  
 COUNTY OF WELLINGTON**



CAUTION: THE BERRY & LEE A PLAN OF  
 SURVEY AND SHALL NOT BE USED FOR ANY PURPOSE  
 EXCEPT THAT SHOWN IN THE TITLE BLOCK  
 © WILSON FORD SURVEYORS & ENGINEERS  
 10 PRINCE AVENUE, WILSON-FORD, MOUNT FOREST ON, NWO 2L6  
 PHONE (519) 338-3311

**WILSON - FORD**  
 SURVEYORS & ENGINEERS  
 10 PRINCE AVENUE  
 MOUNT FOREST ON, NWO 2L6  
 PHONE (519) 338-3311

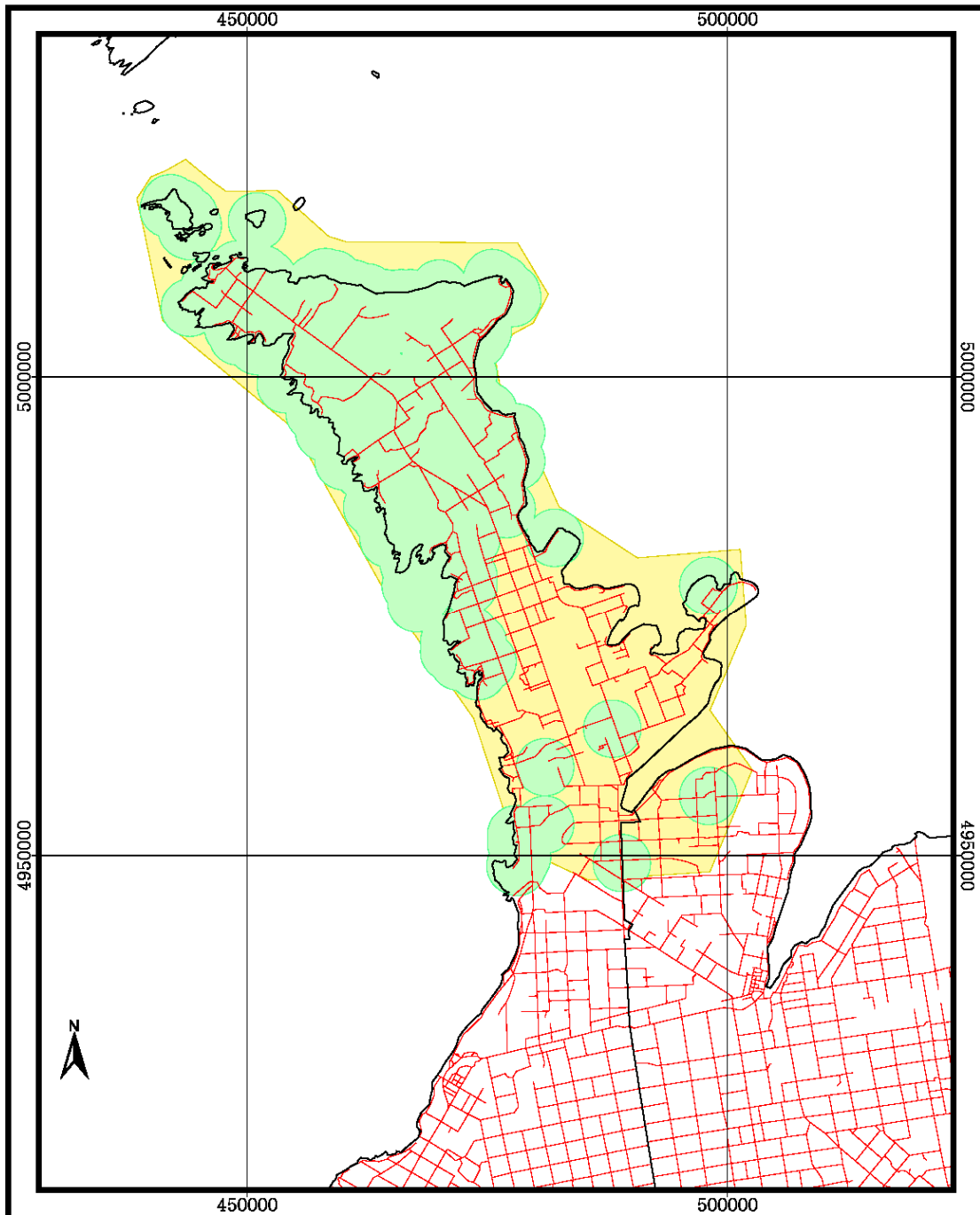
DRAWN BY: P. BROWN, E.C.O. PROJECT NO.: 97-1

## **APPENDIX 5**

- Massasauga Habitat Range Maps

## Eastern Massasauga Rattlesnake

### ➤ Current Range Map for the Bruce Peninsula Population



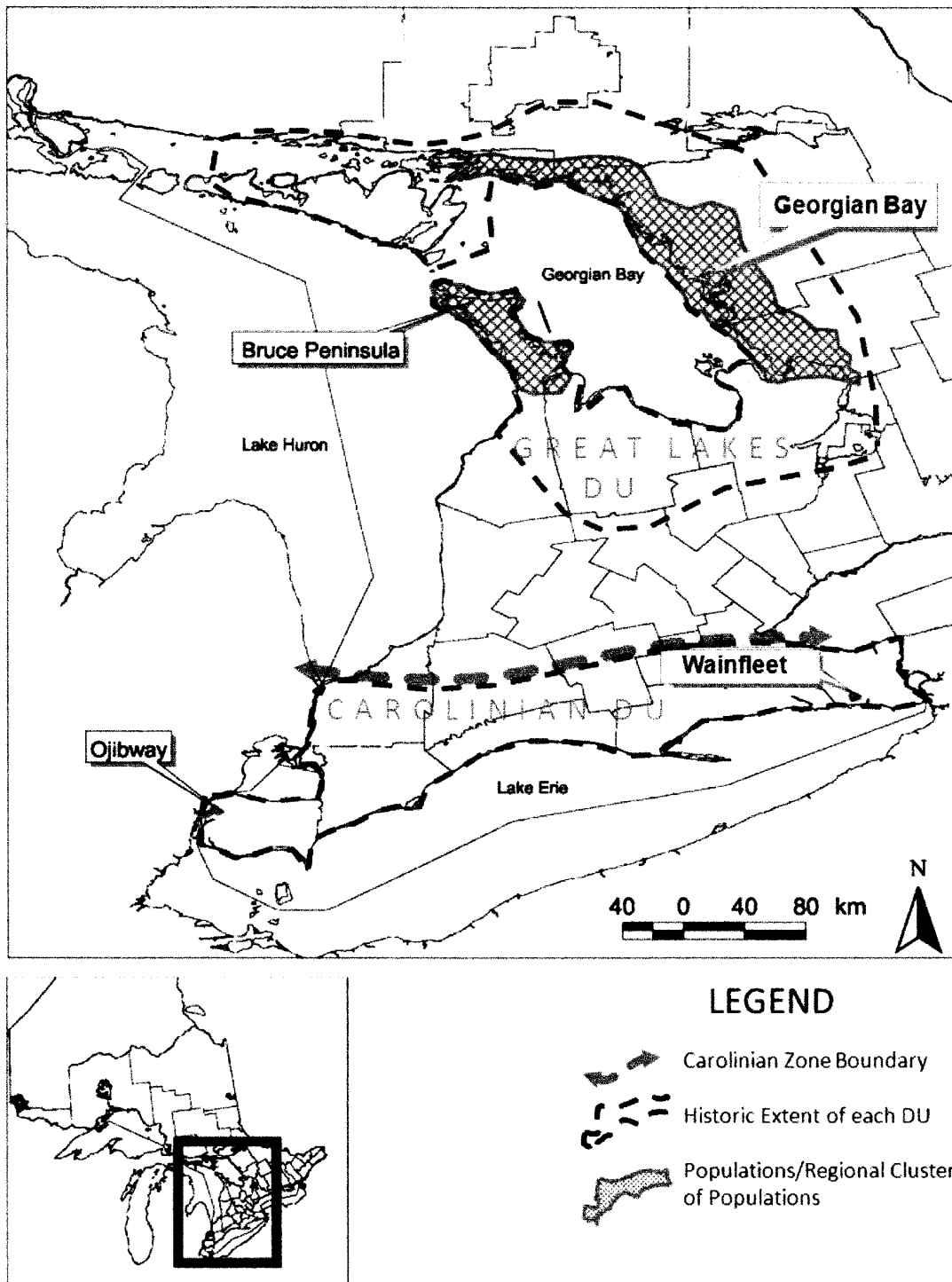


Figure 5. Approximate maximum extent of *Massasauga (Sistrurus catenatus)* designatable units in Canada based on historical and contemporary occurrence records (see Search Effort). Northern boundary of the Carolinian faunal province is approximate (COSEWIC 2009b). Image adapted from Rouse and Willson 2002.

## **APPENDIX 6**

- 2017 Site Photographs



Photo No. 1: Vegetation community No. 1, central woodland area of Study Lands, June

Photo No. 2: Vegetation community No. 1, southeast woodland area of Study Lands, April





Photo No. 3: Vegetation community No. 2, northeast corner area of Study Lands, June

Photo No. 4: Vegetation community No. 2, southeast corner area of Study Lands, June





Photo No. 5: Vegetation community No. 3, Hedgerow in April

Photo No. 6: Vegetation community No. 4, April





Photo No. 7: Vegetation community No. 4, cash crop in July

Photo No. 8: Vegetation community No. 5, April





Photo No. 9: Watercourse flowing through the Study Lands woodland, April

Photo No. 10: Watercourse in August, Drainage Easement Section





Photo No. 11: Groundwater discharge, Seep Zone in April

Photo No. 12: Groundwater discharge, Seep Zone in July



## **APPENDIX 7**

- AWS Qualifications & EIS Experience



**AWS Environmental Consulting Inc.**  
(Operating as Aquatic and Wildlife Services)

242090 Concession Rd. 3 Keppel,  
R.R. # 1, Shallow Lake, Ontario, Canada, N0H 2K0

Office: 519-372-2303, Email: [aws@gbteel.ca](mailto:aws@gbteel.ca)

Web site: [www.awsenvironmental.ca](http://www.awsenvironmental.ca)

**C.V. Summary: John D. Morton**

**Education**

- 1985: Graduate Sault College, Forestry Technician
- 1986: Honors Graduate Sault College, Fish & Wildlife Technologist
- 15 years training and experience with Ontario Ministry of Natural Resources as a contract & full time employee for Natural Heritage Programs and Biology/Ecology

**Work Experience Summary**

- 1997 to Present: Sole Proprietorship of **Aquatic and Wildlife Services**, specializing in Natural Heritage
  - Studies and Development Impact Assessments:
    - Over 250 Natural Heritage and Natural Environment Impact Study Reports for Land Use development proposals throughout Southwestern and Central Ontario in accordance to Legislation and Regulation for Federal and Provincial Agencies, Government and Niagara Escarpment Plan Policies and Conservation Authority Regulatory Lands.
      - Impact assessment technical reports ranging from: Single Residential Lot creations to Plan of Subdivisions for 100+ Lots, and Aggregate applications ranging from 5ha Wayside Gravel Pits to 120 ha Quarry Operations for both above and below groundwater table.
    - Design and Monitoring technical reports for Marina Development, , Water Crossings, Recreational Pond designs, Fish & Wildlife Habitat Restoration Plans and Managed Forest Plans.
    - Species At Risk Surveys for flora and fauna with study areas encompassing 20ha to 7000ha
    - Ontario Municipal Board expert witness testimony on Natural Heritage Features, Ecology, Development Impacts and Mitigation Techniques.
- 1986 to 1997 : Resource Technician with the Ontario Ministry of Natural Resources, responsibilities included:
  - Backfill positions for Owen Sound Area Office District Biologist (Fisheries and Wildlife), and District Fish & Wildlife Management Officer.
  - Review and commenting on Provincial interests through Planning Review for development proposals.
  - Deputy Conservation Officer with completion of 5-week Enforcement Training Program, Provincial Offences charges, court evidence presentation and convictions.
  - Fish & Wildlife Population and Habitat surveys and Rehabilitation Designs.

- Midhurst District Administrator and Program Coordinator of Wetlands and CFWIP Programs with annual budgeting and auditing roles.
- Fisheries Research Technician and Fish Culture Technician, Chatsworth Fish Culture Station.
- 1982 to 1986 : Contract Resource Technician With Ontario Ministry of Natural Resources, Grey-Sauble and Saugeen Conservation Authorities, responsibilities included:
  - Wetland Inventory Technician, Fish and Wildlife Population and Habitat Surveys.

### **Project Related Experience Summary**

- Fauna population and habitat surveys:
  - Salmonid biomass surveys through seining and Electrofishing.
  - Stream/Watershed surveys for habitat quality/conditions, fish passage/barriers, water quality assessment including Benthic Macro Invertebrate sampling.
  - Genetic research survey work on Chinook Salmon, Saugeen Muskellunge, Backcross Lake Trout.
  - Inland Lake surveys for water quality, thermal regimes, fisheries qualitative assessments through seining, trap netting, creel survey.
  - Stream/River/Lake Fisheries habitat enhancement and rehabilitation Plans.
  - Wintering Deer Yard mapping, quality assessment, carrying capacity calculations, herd health monitoring and natural reproduction rates.
  - Genetic research work on Bruce Peninsula Eastern Massassagua Rattlesnake and Black Bears including radio telemetry.
  - Breeding Bird surveys including waterfowl nesting surveys and natural recruitment success, Bald Eagle monitoring and banding, mapping of Owen Sound area significant production/staging areas.
  - Amphibian qualitative assessment within sensitive environments and monitoring population trends for wetland habitat conditions.
  - Species At Risk Surveys with habitat mapping and Ecological Land Classification community mapping for Copeland Forest, Shallow Lake Wetland, Meaford National Defense Training Centre, Grey County Pretty River Forest Tract and Oliphant Fens
- Flora species and habitat surveys:
  - Provincially Certified Wetland evaluator to Book 2 and 3 standards, with over 150 wetland evaluations and desktop upgrades completed. Wetland Evaluation instructor to former book 2 standards with successful training of 30+ candidates.
  - Southern Ontario Ecological Land Classification- Vegetation Community Mapping for sensitive and/or rare habitat types including fens, bogs, natural beaches, and alvars plus common woodland community types.
  - Botanical qualitative inventory works including identification, mapping of species of conservation concern with status levels and habitat types/condition assessments.
  - Tree marking for sustainable harvesting and rotational management of fuel wood and/or saw logs.
  - Native tree and shrub nursery operation with annual seedling production and retail sales of deciduous and conifer seedlings and saplings.

## **Certification & Training Courses:**

- Provincially Certified Wetland Evaluator to Book 2 and Book 3 Standards
- Provincial Class 1 Electrofishing Certification
- Provincial workshop training for Natural Heritage Environmental Impact Studies, Natural Hazard Studies and Non-Renewable (Aggregates) Impact Studies
- Level '1' OMNR Law Enforcement training
- Advanced Fish Habitat training and Habitat Impact Assessment
- Fluvial Geomorphology Workshop
- Stream Bioengineering Restoration training
- Cyprinidae Identification Workshop
- Wetland Restoration Techniques Training
- Provincial Managed Forest Tax Incentive Plan Approver
- Species-At-Risk Ontario Mussel Identification
- Bruce Peninsula Eastern Massassagua Rattlesnake Habitat Identification Training through Radio Telemetry work with Parks Canada
- Ecological Land Classification System for Southern Ontario
- Provincial Tree Making Course
- WHMIS
- Ontario Courts Evidence Collection and Presentation Training
- Department of Fisheries and Oceans South Georgian Bay Fish Habitat Issues Workshop
- Provincial Butternut Health Assessor
- Biotechnical Slope Stabilization Workshop.

Recipient of Provincial -OMNR Award for Fish Habitat Restoration Works & Stewardship

## C.V. SUMMARY: Judith Jones

### Education

B.S. Botany, University of Michigan, Ann Arbor 1980  
M.S. Cell Biology, University of Illinois, Chicago 1983  
Ontario Provincial Wetland Evaluator--certified 1999  
Canadian Environmental Assessment Agency—screening training, 2007  
Certificate of Proficiency in Spanish, Ryerson University, 2012

### Areas of Expertise

Plant identification and classification  
Vegetation identification and mapping (Ecological Land Classification; VSP; other protocols)  
Identification and mapping of Species at Risk and their habitats  
Life science inventories  
Field mapping of other natural features

**Judith Jones has been a consulting biologist since 1994. She has worked for AWS since 2005.**

### Highlights of Recent Projects

#### SURVEYS FOR ENVIRONMENTAL IMPACT

##### STUDIES (Subdivisions, Aggregates, etc.)

Aquatic and Wildlife Services since 2005  
Robin Craig Consulting since 2013  
M.K. Ince and Associates (2006)  
CEAA screening, Beausoleil First Nation (2007-8)

#### LIFE SCIENCE INVENTORIES

- 58 acres on Manitoulin Island for a species at risk farm plan.
- Ecological survey for an ecogift transfer.
- Copeland Forest
- Oliphant Shoreline
- Degrassi Point Prairie Remnant
- Carden Alvar ANSI
- 4 provincial parks on Manitoulin Island
- 4 conservation reserves on the Georgian Bay Coast
- Alvares of the Manitoulin District
- Manitoulin Island Escarpment ecosystem
- Field work: NCC's Ecological Survey of the Georgian Bay Coast.

#### RESEARCH

- Life history of Hill's Thistle (threatened)
- Demographics of Pitcher's Thistle (thr.)
- Niagara Escarpment: 50 years of forest change, VSP and point-quarter sampling.
- Sustainable harvest levels for Canada Yew (*Taxus canadensis*)
- Fire history of Oak Savannah vegetation
- Fire history of Manitoulin alvars

#### SPECIES AT RISK SURVEYS

- SAR surveys & mapping: Wikwemikong First Nation, Serpent River First Nation, Beausoleil First Nation, United Chiefs and Councils of M'nidoo M'nissing.
- Trent-Severn Waterway (Parks Canada)
- Fort St. Joseph National Historic Site
- Sault Canal National Historic Site
- Survey and mapping of Pitcher's Thistle and dune grasslands on Lake Huron

#### RECOVERY OF SPECIES AT RISK

- Author of more than 25 recovery strategies, action plans, management plans, and COSEWIC reports for endangered, threatened, and special concern species.
- Monitoring design and implementation for several species at risk and for prairie and alvar habitats.
- Coordinator of SAR monitoring by volunteers on Manitoulin Island

#### OTHER

- Gathering traditional ecological knowledge (TEK): Wikwemikong, Sagamok Anishnaabek, and elsewhere.
- Workshops about SAR for schools, Christian Island, Manitoulin Island
- Spring flora courses for non-biologists
- Layout and construction of trails (Misery Bay Provincial Park; other locations)
- Nature and environment columnist for the Manitoulin Expositor (1992-2004)

**Natural Heritage Environmental Impact Studies and Experience 1997-2016**

**Residential Subdivisions & Commercial Development**

Grey County (14)	Bruce County (21)
Andpet 16th Ave Comm Deve.-Owen Sound Loucks Subdivision- Chatsworth Langen Subdivision-Shallow Lake Boulter Subdivision- Keppel Hilton Head Subdivision- Meaford Oak Meadows Subdivision-Meaford Mannerow Estates- Owen Sound Georgian Shores Subdivision-Sarawak Sutacriti Park Phase III- Sarawak Debrincat Subdivision- Holland Ferrato Subdivision- McCullough Lake Andpet Bothwells Corner Comm.- Owen Sound HSC Alvanley Comm. Cement Plant-Keppel MacKinnon-Smart Subdivision-Francis Lake	Lakeside Woods Subdivision-Saugeen Weatherhead Development- Eastnor Maple Ridge Development-Amabel Good Acres Development-Eastnor Brown Subdivision- Kincardine Sundance Estates- Bruce Walker Estates Phase II-Amabel Mystic Cove Subdivision-Kincardine Black Subdivision-Kincardine Mary Rose Subdivision-Saugeen Gray Mildmay Development- Carrick Lake Huron Escape-Bruce MacKenzie Development-Saugeen Harkins Harbour Development- Lindsay
	Pegasus Trails-Saugeen Lorne Beach Development- Kincardine Mulholland Division St-Southampton Chippewa Golf & Country Club-Saugeen Leslie Subdivision-Saugeen McMillan Subdivision-Saugen Peacock's Meats and Groceries Inc-Tobermory <b>Wellington County (1)</b> Murphy Subdivision - Mount Forest <b>Perth County (1)</b> Maitland River Estates - Listowel

**Infrastructure Projects & Industrial Development**

Bruce County (16)	Grey County (19)
Barrow Bay North Shore Road Bruce Road 21--Stoney Creek Bruce Road 25 Kincardine-Park Street Bruce Road 9 Bruce Road 12 Southampton Sanitary Sewers Arran Landfill Expansion Calhouan Drain Bruce County Line Road Upgrades Otter Creek-Dam Removal McClure's Bridge Silver Creek Bridges-Walkerton Saugeen Shores 10th Line Drain Mildmay Elora Street Dam Removal South Bruce Carrick-Normanby Meux Cr Bridge	Owen Sound 7th Street Drain Highway 4 Hanover-Stream Crossing Owen Sound 6th Ave Stream Course Sarawak Carney Street SWM Southgate- Camp Creek Crossing Owen Sound 9th St. Bridge Owen Sound 10th St. Extension Grey County Line Greir Creek Bridge Chatsworth- Sewage Upgrade Southgate-Stream Realignment Mill Creek Crossing Dipple Drain West Grey-Traverston Creek Realignment Owen Sound-Sydenham River Stabilization Minnihill Creek Fish Habitat Improvements
	Town of Hanover Business Park Viking-Cives Ltd - Mount Forest Sydenham Heights-Owen Sound Servicing <b>Huron County (2)</b> Wingham Force main Goderich Pier Stabilization <b>Wellington County (2)</b> Town of Minto-Coon Creek 5-Year Monitoring Town of Minto-Palmerston Industrial Park

**Natural Heritage Environmental Impact Studies and Experience 1997-2016**

**Recreational and Energy Land Use Development**

<b>Grey County (28)</b>	<b>Bruce County (13)</b>	<b>Simcoe County (3)</b>
<p>Monterra Plateau Stream Realignment                      Devils Glen Ski Hill Expansion                      Morris Wetland Creation                      Rocky Saugeen Campground Expansion                      Sobiski Property Shoreline Stabilization                      Pesnail Property Shoreline Stabilization                      Carmicheal Pond Cleanout                      Overton Pond Design                      Beaver River Bank Stabilization                      Andrews Pond Design                      Hrodzicki Storage Building                      Klages Tree Retention Plan                      Cedar Run Horse Park Expansion                      Osler Bluff Shi Club-Storage Building                      Osler Bluff Ski Club-Water Reservoir                      Blue Mount. Orchard Run Ski Hill Expansion                      Walters Falls Hydro Facility Proposal                      Blue Mount Resort-Roller                      Blue Mount. Resort Stream Monitoring                      AndPet Commercial Development                      East West Exchange Retreat Camp                      Lahman Comm. Development                      Blue Mount. Resort SWMP Outlet Monitoring                      Lee Pond Design                      Morrison Marina                      Meaford-Cemetery Creek Realignment                      Goodyear-Effluent Monitoring                      Miller Group Ltd, -Owen Sound Indus. Park</p>	<p>Blue Heron Parking Lot                      Home Hardware-Sauble Beach                      Mystic Cove Stream Realignment                      Casey Property-Bank Stabilization                      Wells Trucking-Mildmay                      MacKenzie Marina Dredging                      Pike Bay Marina Dredging                      Chesley Lake Cottagers Assoc. Dredging                      Miller Property Shoreline Dredging                      Hood Property Shoreline Dredging                      Smith Com. Expansion                      LEED Tree Retention Plan                      Mildmay-Hamel's Pond and Elora Street Dam</p>	<p>Hamilton Brothers Ltd.-Stream Restoration                      Devils Glen Stream Realignment                      Devils Glen Club House Expansion                      Robitaille Wind Farm-Cedar Point</p> <p><b>Dufferin County (2)</b></p> <p>Bowman Comm. Development                      Cedar Highlands Ski Club</p> <p><b>Wellington County (1)</b></p> <p>White's Creek Restoration</p> <p><b>Manitoulin Island (2)</b></p> <p>Manitoulin Streams Association                      Municipality Official Plan</p>

**Natural Heritage Environmental Impact Studies and Experience 1997-2016**

**Lot Severances & Building Envelopes**

Grey County (89)		
Zaferis Building Envelope	Hughes Building Envelope	Wiley Severance
Clancy- 20th Street Building Envelope	Wilson Building Envelope	Davies Severance
Emmerson Building Envelope	Smith Severance	Stewart Severances
Shantz Building Envelope	Currie Building Envelope	Irwin Building Envelope
Fligg Building Envelope	Valette Building Envelope	Valent Building Envelope
Todd Severance	Robinson Severance	Barfoot Building Envelope
Underwood Building Envelope	Taylor Building Envelope	Voisin Building Envelope
Klages Severances	Low Building Envelope	Colborne Building Envelope
Beacock Building Envelope	Donavon Building Envelope	Tengler Building Envelope
McNeil Building Envelope	Lupia Building Envelope	Langerap Building Envelope
Gilbert Severances	Zeggil Severances	Wattie Building Envelope
Dillman Severance	McNeil Severance	Hall Severance
Thom Severances	Byers Building Envelope	Hrodzicki Building Envelope
DiFranco Severances	Gilmour Building Envelope	Nicholls Dwelling Expansion
Farnenhorst Building Envelope	Martindill Severance	NEC-Caframo Tree Preservation Plan
Biesinger Severances	Peach Severance	Elliott Building Envelope
Love Building Envelope	Ryan Severance	Spaleta Building Envelope
Braun Severances	J. Martin Building Envelope	Haslam Severance
Legge Building Envelope	Shrek Building Envelope	Bethune Severance
Wilcox Building Envelope	James Severance	
HSC Clavering Severances	Maxwell Severance	
Holmes Building Envelope	Harris Severance	
Brulette Severances	R. Martin Building Envelope	
Philipp Severances	Philipp Building Envelope	
Sheppard Severance	Bauman Building Envelope	
Pfaff Building Envelope	Berg Building Envelope	
Wilmer Severances	Shrek Severance	
Doherty Building Envelope	Yoder Severance	
Menaul Severance	Hollingshead Severance	
McNabb Building Envelope	McKay Building Envelope	
Toombs Building Envelope	Molner Severance	
McGowan Building Envelope	Detzler Severance	
Lobban Severance	Baragar Building Envelope	

